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Noise Impact Report

Project Details

Client	Krol Corlett Construction Limited
Client Address	Morgan Brightside Building Bradman Road Knowsley Industrial Park L33 7UR
Site Address	75 Mosley Street Manchester M2 3HR
Reference	22989E

Quality Assurance

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V1	27/02/2026	Alejo Garcigoy	First issue
V2	23/03/2026	Alejo Garcigoy	Minor formatting, updated operational hours



Contents

1	Executive Summary	5
2	Introduction.....	6
2.1	Environmental Noise Assessment.....	6
3	Assumptions, Limitations & Uncertainty	7
4	Planning Policies, Guidance and Criteria	8
4.1	National Planning Policy.....	8
4.2	Criteria.....	10
4.2.1	Local Planning Authority Criteria.....	10
4.2.2	BS 4142 Method for rating and assessing industrial and commercial sound.....	10
4.3	Criteria Summary	11
5	Site Description	12
5.1	Subjective Observations.....	12
5.2	Weather.....	12
6	Noise Measurement Procedure	13
6.1	Survey Date & Personnel Present.....	13
6.2	Survey Equipment Used	13
6.3	Calibration.....	13
6.4	Background Sound Measurements	13
6.4.1	Monitoring Position 1	13
6.4.2	Monitoring Position 2	13
6.5	Location Plan of Measurement Positions.....	14
7	Survey Results and Analysis.....	15
7.1	External Background Measurement Results	15
8	Noise Impact Assessment.....	17
8.1	Assessment of Mechanical Plant in Accordance with BS4142:2014.....	17
8.2	Plant Equipment.....	17
8.3	Subjective Assessment.....	17
8.4	Numerical Assessment.....	18
8.5	Mitigation & Recommendations.....	19
8.5.1	Further Recommendations.....	20
8.6	Context.....	20



9 Conclusion 21

10 References 22

10.1 Drawing References 22

Appendix 23

Figure 1: Photograph showing Monitoring Position 1 23

Figure 2: Photograph showing Monitoring Position 2 24

Proposed Floor Plans 25

Technical Datasheets 28

Measurement Results 31

Vent Duct Calculations – Pre-mitigation 33

Vent Duct Calculations – Post Mitigation 34



1 Executive Summary

A noise assessment has been conducted for the operational external noise associated with a proposed MVHR ventilation system and WC extraction cowls servicing office premises at 75 Mosley Street, Manchester M2 3HR.

The assessment is to be submitted in support of a planning application ref. 143759/FO/2025 for the development site to Manchester City Council in response to a conditional approval.

The assessment considers the impact on potentially noise sensitive neighbouring residential and associated office premises in comparison with BS 4142: 2014 and policies SP1 and DM1 of the Core Strategy for the City of Manchester and Unitary Development Plan saved policy DC26.

Following implementation of recommended mitigation measures, assessment of noise levels due to external plant noise emissions indicates no adverse impact on the acoustic amenity of the nearby office occupants with reference to BS 4142: 2014 noise criteria.



2 Introduction

Krol Corlett Construction Limited has instructed Spratt and Hamer Limited to undertake a noise survey to assess the impact of the proposed external mechanical plant on nearby occupants.

It is proposed to redevelop an existing office located within a seven-storey building from a Class E use to a sui generis use. In association with this scheme, intake and exhaust MVHR terminals are proposed to be installed at the façade, along with two rooftop air cowl. The assessment is to be submitted as part of a planning application ref. 143759/FO/2025 for the development site Manchester City Council in response to a conditional approval.

This report is prepared solely for Krol Corlett Construction Limited. Spratt and Hamer Limited accept no responsibility for its use by any third party.

This document has been prepared using the various documents listed within the appendices of this report, together with drawings, technical information and additional verbal representations made by third parties. We have not audited nor independently verified the content or accuracy of any of the documents and information provided to us in the preparation of this report.

If additional information comes to light subsequent to the production of this report, we reserve the right to revise our opinions and the conclusions reached within this report.

2.1 Environmental Noise Assessment

Spratt and Hamer Limited have undertaken a noise impact assessment at the above site with noise levels measured externally over a 72-hour period, consisting of a 16-hour days (07:00 – 23:00) and eight-hour nights (23:00 – 07:00) in order to establish background levels around the vicinity. The measurements were carried out over from Friday to Monday.

This report will state the measured noise levels and will refer to guidance relevant to the nature of this survey whilst considering possible Local Planning Authority guidance and conditions.



3 Assumptions, Limitations & Uncertainty

- a. All suggested specifications require a good level of workmanship and for materials to be installed as the manufacture intends. Any poor workmanship may lead to weaknesses in the sound attenuation provided by the building elements and/or mitigation measures.
- b. It is assumed that the sound pressure levels measured on site during the environmental noise survey are typical of the site.
- c. It is assumed that the technical data provided by plant manufacturers is up to date and correct.
- d. It is assumed that all information supplied by Krol Corlett Construction Limited and Atkins Realis is up to date and correct.
- e. No residential receptors have been identified or confirmed by the client. It is therefore assumed that there are no nearby residential properties in the vicinity of the proposed development.



4 Planning Policies, Guidance and Criteria

The planning policies and criteria listed below are taken from associated relevant guidance documents, all of which should be considered for the external and/or internal noise.

4.1 National Planning Policy

The National Planning Policy Framework (NPPF), published in December 2024 and updated in February 2025, sets out the Government's planning policies for England and how they are expected to be applied. It provides a framework within which the Local Authorities are to prepare local plans and use their planning powers to minimise the adverse impact of noise. It should contain the following in relation to noise impacts.

187. Planning policies and decisions should contribute to and enhance the natural and local environment by:

'preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability.'

198. Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so they should:

'mitigate and reduce to a minimum potential adverse impact resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life'

NPPF previously characterised noise by grading and recommending actions and different effect levels as reproduced in Table 1.



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Perception	Examples of outcomes	Increasing effect level	Action
No Observed Effect Level			
Not present	No Effect	No Observed Effect	No specific measures required
No Observed Adverse Effect Level			
Present and not intrusive	Noise can be heard, but does not cause any change in behaviour, attitude or other physiological response. Can slightly affect the acoustic character of the area but not such that there is a change in the quality of life.	No Observed Adverse Effect	No specific measures required
Lowest Observed Adverse Effect Level			
Present and intrusive	Noise can be heard and causes small changes in behaviour, attitude or other physiological response, e.g. turning up volume of television; speaking more loudly; where there is no alternative ventilation, having to close windows for some of the time because of the noise. Potential for some reported sleep disturbance. Affects the acoustic character of the area such that there is a small actual or perceived change in the quality of life.	Observed Adverse Effect	Mitigate and reduce to a minimum
Significant Observed Adverse Effect Level			
Present and disruptive	The noise causes a material change in behaviour, attitude or other physiological response, e.g. avoiding certain activities during periods of intrusion; where there is no alternative ventilation, having to keep windows closed most of the time because of the noise. Potential for sleep disturbance resulting in difficulty in getting to sleep, premature awakening and difficulty in getting back to sleep. Quality of life diminished due to change in acoustic character of the area.	Significant Observed Adverse Effect	Avoid
Present and very disruptive	Extensive and regular changes in behaviour, attitude or other physiological response and/or an inability to mitigate effect of noise leading to psychological stress, e.g. regular sleep deprivation/awakening; loss of appetite, significant, medically definable harm, e.g. auditory and non-auditory.	Unacceptable Adverse Effect	Prevent

Table 1: Noise exposure hierarchy based on likely average response.



4.2 Criteria

4.2.1 Local Planning Authority Criteria

A planning application, under reference 143759/FO/2025, has been submitted to the Local Authority and has been approved with conditions. The following noise related conditions have been produced:

“Condition 3a: Any plant, equipment and servicing shall be selected and/or acoustically treated in accordance with a scheme designed so as to achieve a rating level of 5dB (L_{Aeq}) below the typical background (L_{A90}) level at the nearest noise sensitive location. Prior to commencement of the use hereby approved, the scheme shall be submitted to and approved in writing by the City Council as the Local Planning Authority in order to secure a reduction in the level of noise emanating from the site. The scheme shall be implemented in full before the use commences.”

“Condition 3b: Prior to the operation of the scheme, a verification report shall be submitted to and approved in writing by the City Council as local planning authority to validate that the work undertaken throughout the development conforms to the recommendations and requirements in the approved acoustic report. The report shall also undertake post completion testing to confirm that the noise criteria have been met. Any instances of non-conformity with the recommendations in the report shall be detailed along with any measures required to ensure compliance with the agreed noise criteria.”

In addition, condition 5 states:

“Condition 5: The premises shall not be open outside the following hours: 06:00 to 23:00 Monday to Sunday.”

4.2.2 BS 4142 Method for rating and assessing industrial and commercial sound

BS 4142:2014+A1:2019 Method for rating and assessing industrial and commercial sound is routinely used by local authorities in assessing noise associated with industrial and/or commercial activity.

In brief, BS 4142 provides a means of assessment whereby noise from industrial and commercial sources (the "specific sound level", $L_{Aeq,t}$) is compared with background noise ("background sound level", L_{AF90}).

The specific sound level may be corrected by a numerical penalty if it includes acoustic features that are considered to be distinctive. The corrected specific sound level is termed a "rating level" ($L_{Aeq,t}$) and is designed to reflect people’s subjective reaction to noise characteristics that may be considered annoying.

The rating level is then compared to the background sound level to assess its impact. BS 4142 describes an indication of the impact according to the numerical difference between the rating level and the background sound level. This is shown below in Table 2.

Rating Level – Background Sound Level	Indication of Impact
+ 10dB	Significant Adverse Impact
+ 5dB	Adverse Impact
≤ 0dB	Low Impact

Table 2: BS 4142 Rating Level Impact



4.3 Criteria Summary

To satisfy condition 3 of the planning application, the assessment and recommendations will be made in reference to the Core Strategy for the City of Manchester, the Unitary Development Plan and *BS 4142:2014+A1:2019 Method for rating and assessing industrial and commercial sound*.

Based on the above, noise emissions will require the rating sound level to remain at least 5 dB below the representative background sound level.



5 Site Description

The proposed development at is an existing seven-storey building situated in the centre of Manchester, approximately 585m north from the Manchester Oxford Road station, in the Chinatown area. The surrounding area is predominantly commercial in character, featuring multi-storey office buildings. The vicinity experiences regular traffic flow and pedestrian activity.

The surrounding road network experiences high levels of vehicular traffic flow, particularly along Mosley Street and Nicholas Street, which are main transportation links running northwest and southwest of the site. The tram line also operates along Mosley Road. Several businesses such as restaurants (Myprotein Kitchen), shops (Sainsburys Local), banks (Bank of China) and others carry out their activity on the ground floor of the surrounding office buildings. At the time of writing, no residential properties have been identified in the immediate vicinity.

The associated office is currently located on the sixth floor of 75 Mosley Street, overlooking the neighbouring office blocks and surrounding mechanical plant, installed on the rooftops. In the absence of nearby residential receptors, the closest noise-sensitive receptors will be considered to be the associated office premises within the same building.

The noise profile of the area is dominated by vehicular traffic, tram operation and noise emanating from plant, mixed with other noise sources secondary in nature.

5.1 Subjective Observations

During site attendance, subjectively the noise was dominated by traffic emanating from Mosley Road, including tram operation along this road and regular emergency sirens noise. Noise from neighbouring mechanical plant was also clearly audible from the southeastern façade overlooking Back George Street.

5.2 Weather

20-23/02/2026	Friday	Saturday	Sunday	Monday
Temperature (°C)	4.6 – 10.2	7.7 – 13.7	7.9 – 14.4	8.2 – 12.7
Wind Speed (m/s)	0.0 – 3.1	0.0 – 2.2	0.0 – 3.1	0.0 – 3.1
Wind Direction	S	SSE	SE	ESE
Precipitation (mm/h)	0.0 – 1.8	0.0 – 2.0	0.0 – 1.3	0.0 – 0.5
Damp road/ wet ground	Yes	Yes	Yes	Yes
Fog/snow/ice	None	None	None	None

Table 3: Weather Conditions

All weather data taken from wow.metoffice.gov.uk from the Shirley weather station, located approximately 5.5 km northeast of the proposed development.



6 Noise Measurement Procedure

6.1 Survey Date & Personnel Present

Date	Survey	Personnel Present
20/02/2026 – 23/02/2026	External 72-hour	Luke Owen BSc (Hons) AMIOA

Table 4: Survey Date & Personnel

6.2 Survey Equipment Used

Manufacturer	Model	Serial No.	Description
Rion	NA-28	00392481	Integrating Sound Level Meter and Real Time Analyser
Rion	NC-74	35125832	Acoustic Calibrator
Rion	NL-52	01032413	Integrating Sound Level Meter and Real Time Analyser
Pulsar	Model 105	93357	Acoustic Calibrator

Table 5: Survey Equipment Used

6.3 Calibration

The sound level meters were calibrated with the field calibrator to a level of 94.0 dB @ 1 kHz prior to and on completion of the survey. No significant drift in calibration was observed. The meters used during the survey are precision grade Class 1.

Calibration certificates are available on request.

6.4 Background Sound Measurements

The measurement locations chosen during the survey were deemed suitable for the determination of the baseline noise levels in the area.

The sound level meters were set to measure broadband and 1:1 octave frequency bands L_{Aeq} , L_{A90} , in 5-minute periods.

6.4.1 Monitoring Position 1

A microphone was placed 2m above the scaffolding overlooking Back George Street, in free-field conditions. The meter was set to measure the complete survey period.

6.4.2 Monitoring Position 2

A microphone was placed 1.5m above the balcony floor level, overlooking the junction of Mosley Street and Nicholas Street, in free-field conditions. The meter was set to measure the complete survey period.

Photographs of the monitoring positions can be found in the appendix.



The location plan below shows the proposed development and positions of the monitoring equipment and associated noise-sensitive receptors (ANSRs).

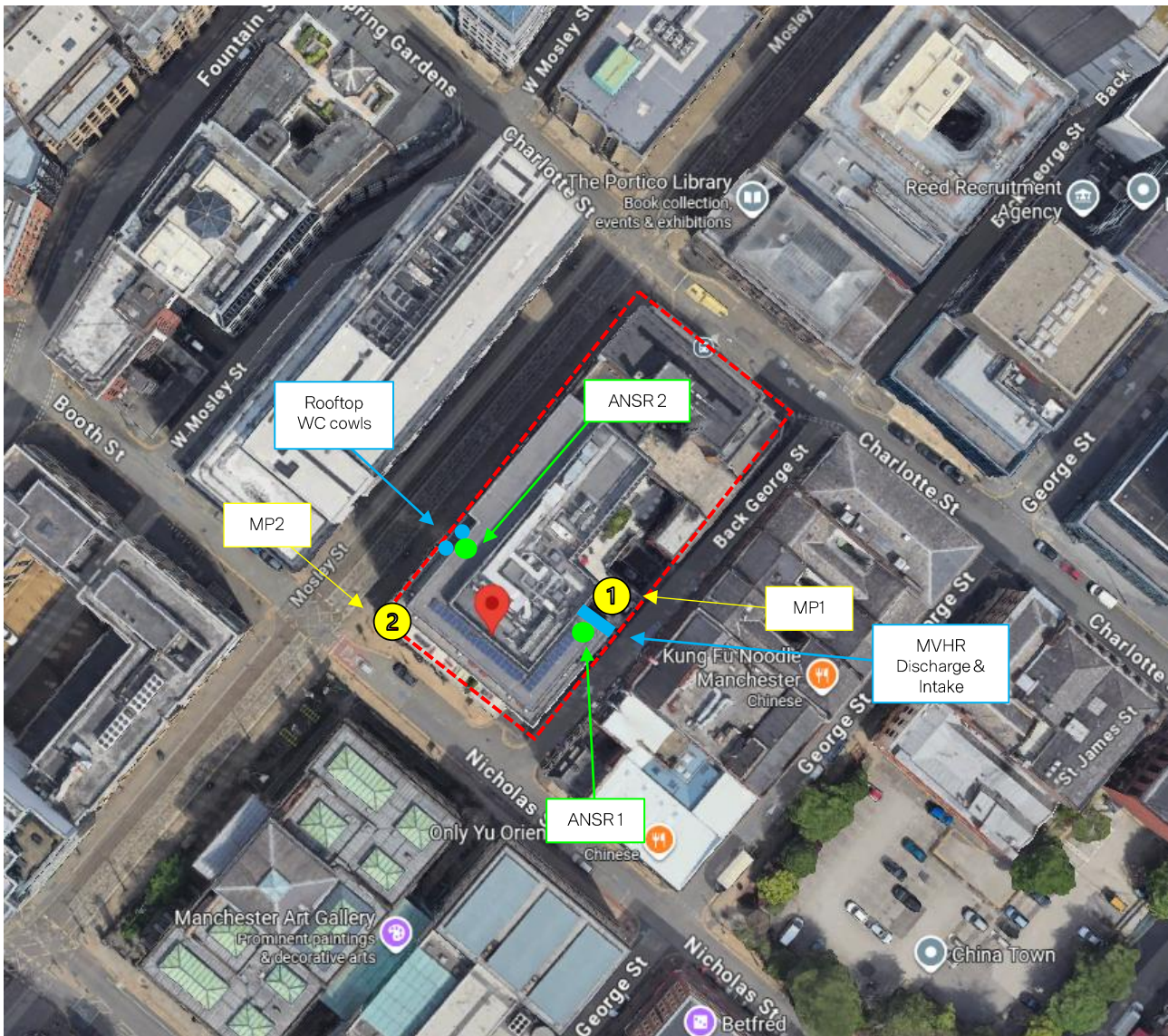


Figure 1: Indicative Site Map. Image taken from www.google.com/maps

7 Survey Results and Analysis

7.1 External Background Measurement Results

The following table presents the measured $L_{A90,1\text{-hour}}$ background noise results from all monitoring positions during the proposed operational hours of the office 06:00 – 23:00, allowing for flexibility in the operational schedule.

It should be noted that construction works were ongoing during the week. Accordingly, the analysis incorporates the weekend period, which, considering the prevailing acoustic climate, it is deemed representative of typical weekday conditions.

All values are rounded to integers such that 0.5 is rounded up. Data charts can be found in the appendix.

Monitoring position	Time Period t	Lowest $L_{Aeq,t}$ (dB)	Min $L_{A90,t}$ (dB)	Max $L_{A90,t}$ (dB)	Modal $L_{A90,t}$ (dB)
1	06:00 – 23:00	63	53	66	66
2	06:00 – 23:00	64	51	60	56

Table 6: Measurement Results

The following histogram presents the measured $L_{A90,1\text{-hour}}$ background results from Monitoring Position 1 during the operational hours of the office.

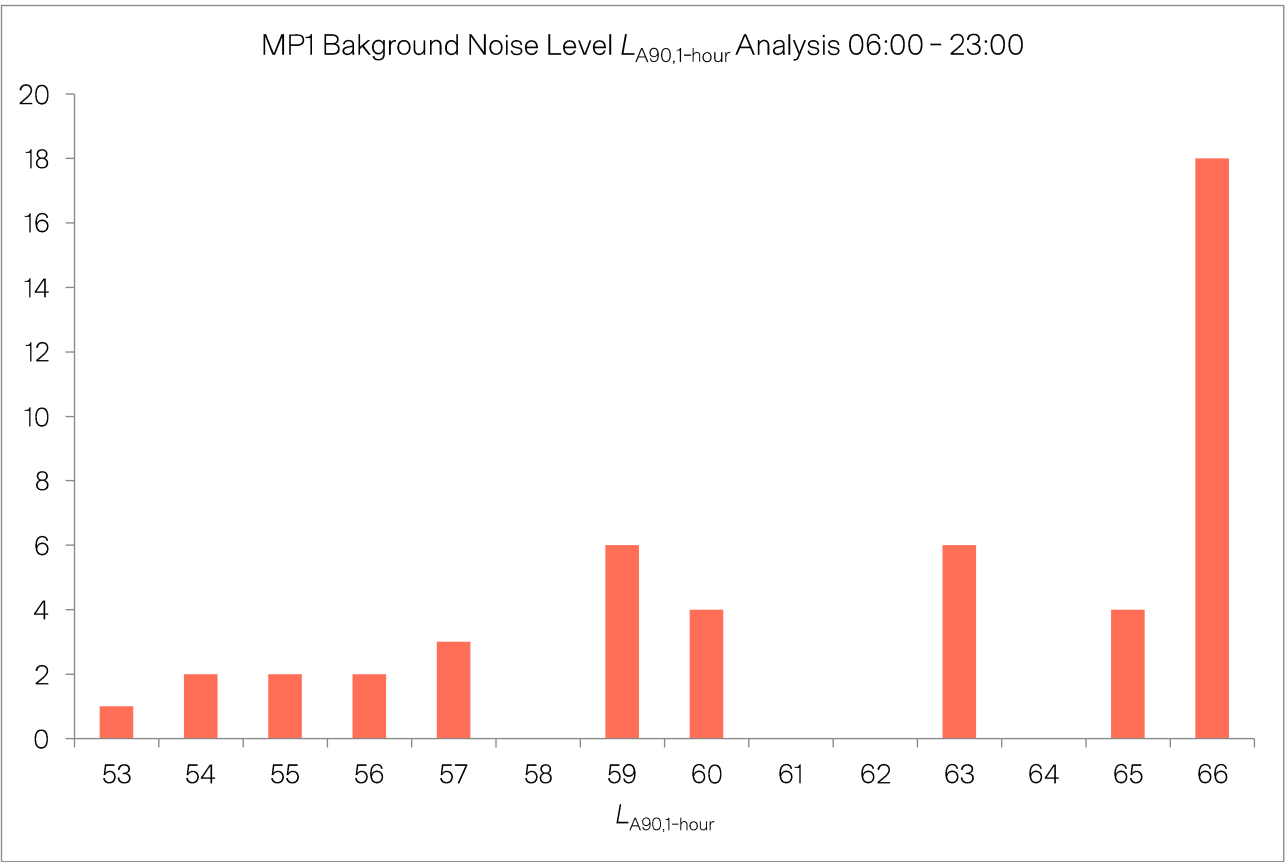


Figure 2: $L_{A90,t}$ Histogram



As demonstrated, the modal SMR (statistically most repeated) $L_{A90,t}$ during the operational hours of the office is 66 dB, which corresponds to the highest measured $L_{A90,T}$ value. The second modal values $L_{A90,T}$ are 63 dB and 59 dB. For robustness, the lower value of 59 dB $L_{A90,T}$ will be adopted for the assessment.

The following histogram presents the measured $L_{A90,1\text{-hour}}$ background results from Monitoring Position 2 during the operational hours of the office.

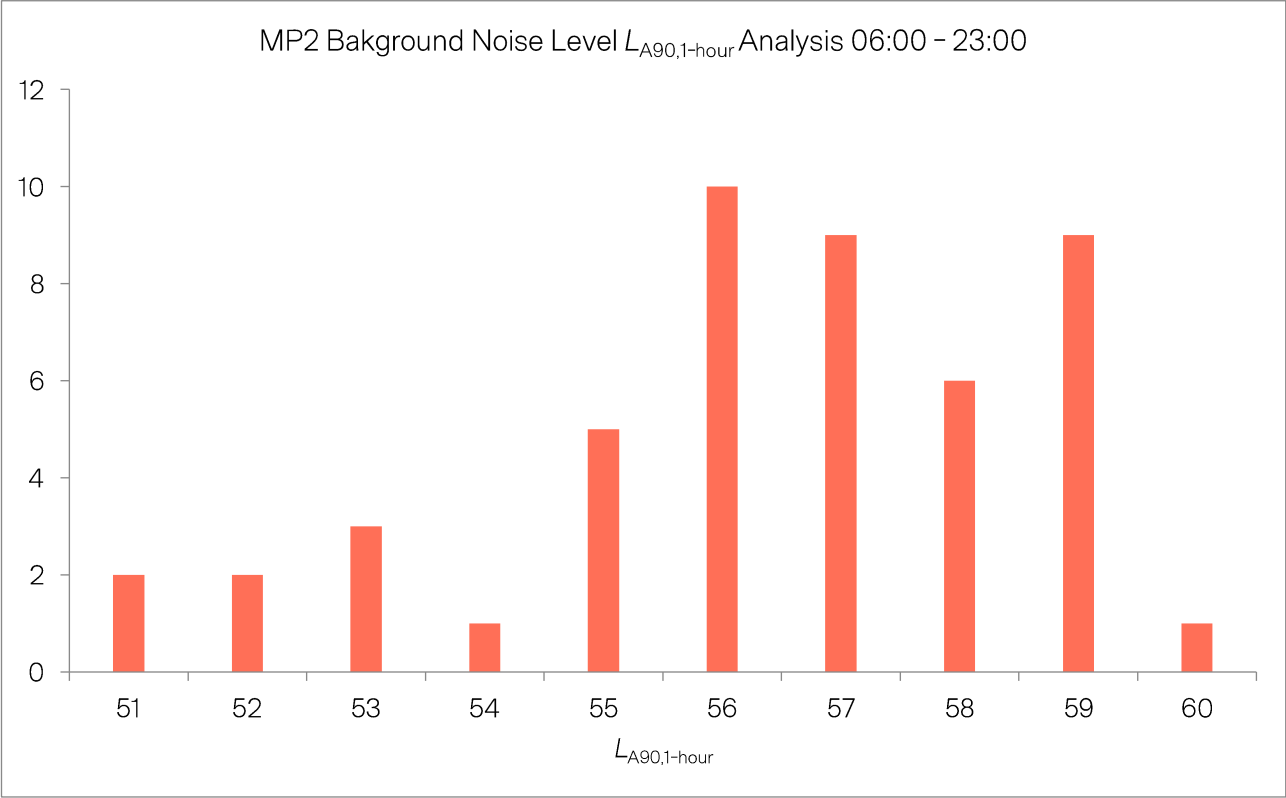


Figure 3: $L_{A90,t}$ Histogram

As presented in the histogram above, the modal SMR (statistically most repeated) $L_{A90,t}$ during the operational hours of the office is 56 dB. This value sits in the mid-range of the measured values and is therefore considered representative of the prevailing background noise, and will be adopted for the assessment.



8 Noise Impact Assessment

8.1 Assessment of Mechanical Plant in Accordance with BS4142:2014

This section will assess the impact of the proposed MVHR external terminals and rooftop WC extraction cowls onto the nearest associated noise sensitive receptors. The MVHR discharge and intake louvres are proposed to be installed through the building's façade, incorporating attenuators. Additionally, two exhaust cowls servicing WCs are to be installed at a height of 310mm above the floor.

8.2 Plant Equipment

The table below details the plant equipment to be installed, along with their corresponding noise emissions or insertion loss based on the manufacturer's acoustic data. To ensure a conservative assessment, the MVHR will be assumed to operate at 75% fan speed.

Make	Model	Description	Fan Speed	1/1 Octave Centre Frequencies (Hz) L_w dB						
				125	250	500	1k	2k	4k	8k
NUAIRE	XBC55 MVHR	Discharge	75%	75	78	65	66	65	60	57
		Intake	75%	68	69	57	58	55	47	35
NUAIRE	Fan DE1-ES	Exhaust Cowls	-	66	68	62	56	51	50	44

Table 7: Manufacturer Plant Noise Emissions

It should be noted that no manufacturer acoustic data could be obtained for the DE1-BC fan, as listed in mechanical schedule 100114757-ATRL-XX-06-SP-M-550002. Consequently, the nearest equivalent model has been used for assessment purposes.

8.3 Subjective Assessment

BS 4142:2014 states that where appropriate a rating penalty should be established for a sound on a subjective assessment of its characteristics and to correct the Specific Sound Level if a tone, impulse or other characteristics occur e.g intermittency.

BS4142:2014 says of Impulsivity:

"A correction of up to +9dB can be applied for sound that is highly impulsive, considering both the rapidity of the change in sound level and the overall change in sound level. Subjectively, this can be converted to a penalty of 3dB for impulsivity which is just perceptible at the noise receptor, 6dB where it is clearly perceptible, and 9dB where it is highly perceptible."

BS4142 says of tonality:

"... a penalty of 2dB for a tone which is just perceptible at the noise receptor, 4dB where it is clearly perceptible and 6dB where it is highly perceptible."

BS4142 says of intermittency:

"... If the intermittency is readily distinctive against the residual acoustic environment, a penalty of 3 dB can be applied."

Due to insufficient data from the manufacturer and the units not being installed to measure in situ; it is unclear as to whether the units will be considered tonal, intermittent or to have any other detrimental



acoustic characteristics. Modern fans are typically designed to not be tonal during their operation. It is unlikely that the operational noise of the proposed units will experience any of the above acoustic characteristics, and provided the plant is maintained regularly, this is expected to remain the case.

8.4 Numerical Assessment

The following assumptions and considerations have been taken into account based on the proposed location and noise emissions of the plant:

MVHR

- The MVHR discharge and intake will be installed through the building façade so the nearby reflecting surfaces will be the façade, where $Q=2$ and $L_p = L_w + 10 \log(Q / 4\pi r^2)$
- The nearest receptors ANSR 1 are the associated windows approximately 1m away from the source.
- The unit will be placed out of the line of sight of the receptor. A -10 dB attenuation for full shielding will be applied.
- No penalty rating correction for detrimental acoustic characteristics will be incorporated.
- The lowest background $L_{A90,1\text{-hour}}$ of 57 dB will be adopted for the assessment during the operational hours of the office premises.

Rooftop Exhaust Cows

- The exhaust cowl will be installed through the flat roof, with one unit being situated closer to the façade. Accordingly, calculations assume $Q=2$ for one unit and $Q=4$ for the other one.
- The nearest receptors ANSR 2 are the associated windows approximately 1m away from the source.
- No penalty rating correction for detrimental acoustic characteristics will be incorporated.
- The lowest background $L_{A90,1\text{-hour}}$ of 53 dB will be adopted.

The table below presents the predicted impact of the MVHR discharge and intake terminals on the nearest noise-sensitive receptor, ANSR 1, as well as the impact of the exhaust cowl on ANSR 2.

Description	ANSR 1 (dB)		ANSR 2 (dB)	
	Discharge	Intake	Cowl 1	Cowl 2
Sound Pressure Level $L_{Aeq,t}$ at 1m	65	48	53	50
Shielding	-10	-10	0	0
Sound Pressure Level $L_{Aeq,t}$ @ ANSR	55	38	53	50
BS4142 Rating	0	0	0	0
Cumulative Rating Sound Level $L_{A,r,T}$	55		55	
Typical Background Noise Level L_{A90}	59		56	
Exceedance	-4		-1	
Exceedance over $L_{A90,T} - 5$	+1		+4	

Table 8: BS4142 Initial Impact Assessment



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The table above indicates that the noise impact due to the proposed plant exceeds the Local Authority requirement as defined condition 3 of the planning application. Accordingly, mitigation measures are required.

8.5 Mitigation & Recommendations

The following mitigations measures will need to be implemented in order to minimise the impact onto nearby receptors:

- The MVHR is supplied with attenuator flanges attached to the discharge and intake terminals. The following silencer Nuaire XBC55-HS-MS10 is to be implemented to the discharge.

Description	1/1 Octave Centre Frequencies (Hz) dB							
	63	125	250	500	1k	2k	4k	8k
NUAIRE XBC55-HS-MS10	-4	-10	-17	-19	-23	-18	-15	-11

Table 9: Discharge Silencer Insertion Loss

- A silencer is to be installed downstream of the fan serving the WCs. The table below specifies the minimum insertion loss of the silencer across the relevant frequency bands.

Description	1/1 Octave Centre Frequencies (Hz) dB							
	63	125	250	500	1k	2k	4k	8k
Systemair LDC 150-300 Silencer -or- similar	-1	-2	-4	-10	-12	-15	-8	-8

Table 10: WC Fan Silencer Recommended Insertion Loss

The following table demonstrates the impact of the proposed plant on the nearest noise sensitive receptors with implemented mitigation.

Description	ANSR 1 (dB)		ANSR 2 (dB)	
	Discharge	Intake	Cowl 1	Cowl 2
Sound Pressure Level $L_{Aeq,t}$ at 1m	65	48	53	50
Insertion Loss	-17	0	-8	-8
Shielding	-10	-10	0	0
Sound Pressure Level $L_{Aeq,t}$ @ ANSR	37	38	45	42
BS4142 Rating	0	0	0	0
Cumulative Rating Sound Level $L_{A,r,T}$	41		47	
Typical Background Noise Level L_{A90}	59		56	
Exceedance	-18		-9	
Exceedance over $L_{A90,T} - 5$	-13		-4	

Table 11: BS4142 Impact Assessment – Mitigated



As demonstrated in the table above, noise emissions will remain 13 dB below the LPA requirement at ANSR 1 and 4 dB below at ANSR 2, corresponding to 'Low Impact' according to BS 4142 definitions and NOAEL (No Observed Adverse Effect Level), thereby satisfying condition 3 of the planning application.

8.5.1 Further Recommendations

- Further mechanical input from a suitably qualified M&E specialist is required to ensure that the proposed plant can withstand the expected external pressures and operate safely and effectively. The dimensions of the air intake and discharge openings, along with the louvre characteristics, may influence the resulting noise levels. Specialist M&E installation advice should therefore be obtained to confirm that the noise levels presented in this report are achieved.
- Weather louvres should be kept well maintained and free from obstruction to allow proper airflow.

8.6 Context

Noise calculations have been carried out using a conservative methodology, incorporating the following considerations:

- The assessment considers the associated office premises as the nearest noise-sensitive receptors, which are considered less sensitive than residential dwellings.
- While noise assessments often allow a relaxation of criteria, as adopted by several Local Authorities, this assessment applies the Local Authority requirement of maintaining plant noise at least 5 dB below the background noise level.
- The office windows are sealed and non-openable, making it likely that noise from the proposed plant will be inaudible within the internal spaces.
- It is anticipated that the weather louvres will provide additional attenuation of the MVHR noise emissions.

Accordingly, it is likely that the impact on nearby receptors will be lower for the majority of the time. No adverse effects are anticipated at any surrounding residential properties.



9 Conclusion

A noise assessment has been carried out for the proposed MVHR ventilation system and WC extraction cowls at 75 Mosley Street, Manchester, in support of planning application ref. 143759/FO/2025. The assessment evaluates potential impacts on nearby residential and office receptors in accordance with BS 4142:2014 and relevant local planning policies.

The report concludes that, based on the understanding of the manufacturers data and proposed location of external plant equipment, plant noise is expected to cause a low impact on the amenity of neighbouring office occupants, provided the mitigation measures are implemented as defined in this report. Accordingly, no adverse impact is expected on any surrounding residential receptors, none of which were identified in the immediate vicinity.

The installation of silencers on both the MVHR discharge and the WC extraction fans is to achieve the Local Authority noise criteria at the nearest noise sensitive receptor and is therefore considered sufficient to enable to discharge of condition 3a of the planning consent.

Condition 3b of the planning application requires a verification report. Spratt and Hamer will perform post-mitigation noise monitoring, or where this is impractical, a visual inspection, to confirm compliance with the established design criteria. If the verification survey indicates that the criteria are not met, further mitigation measures will be considered and implemented as required.



10 References

National Planning Policy Framework (NPPF)

BS 4142:2014+A1:2019 Method for rating and assessing industrial and commercial sound

BS 7445-1:2003 Description and measurement of environmental noise – Part 1: Guide to quantities and procedures

www.google.co.uk/maps

www.metoffice.gov.uk

10.1 Drawing References

100114757-ATR-XX-06-DR-AR-011002-General Arrangement Plan_Proposed

100114757-ATR-XX-06-DR-AR-011019-Acoustic Separation Plan

100114757-ATR-XX-06-DR-ME-531000-Level 06 ventilation layout

100114757-ATR-XX-ZZ-DR-AR-012030-Charlotte Street Elevation - North East Elevation

100114757-ATR-XX-ZZ-DR-AR-012032-Mosley Street Elevation - North West - Proposed



Appendix

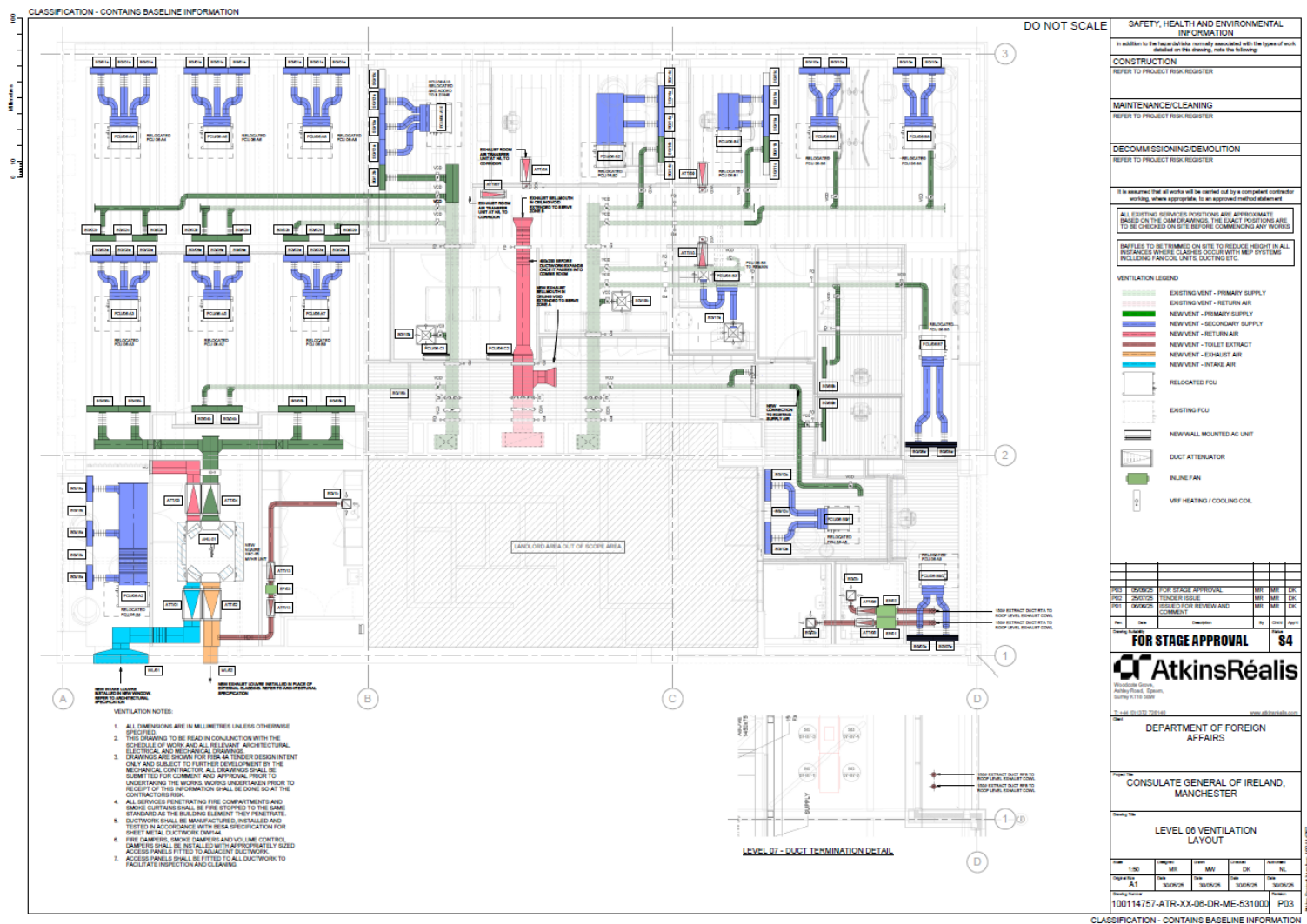
Figure 1: Photograph showing Monitoring Position 1



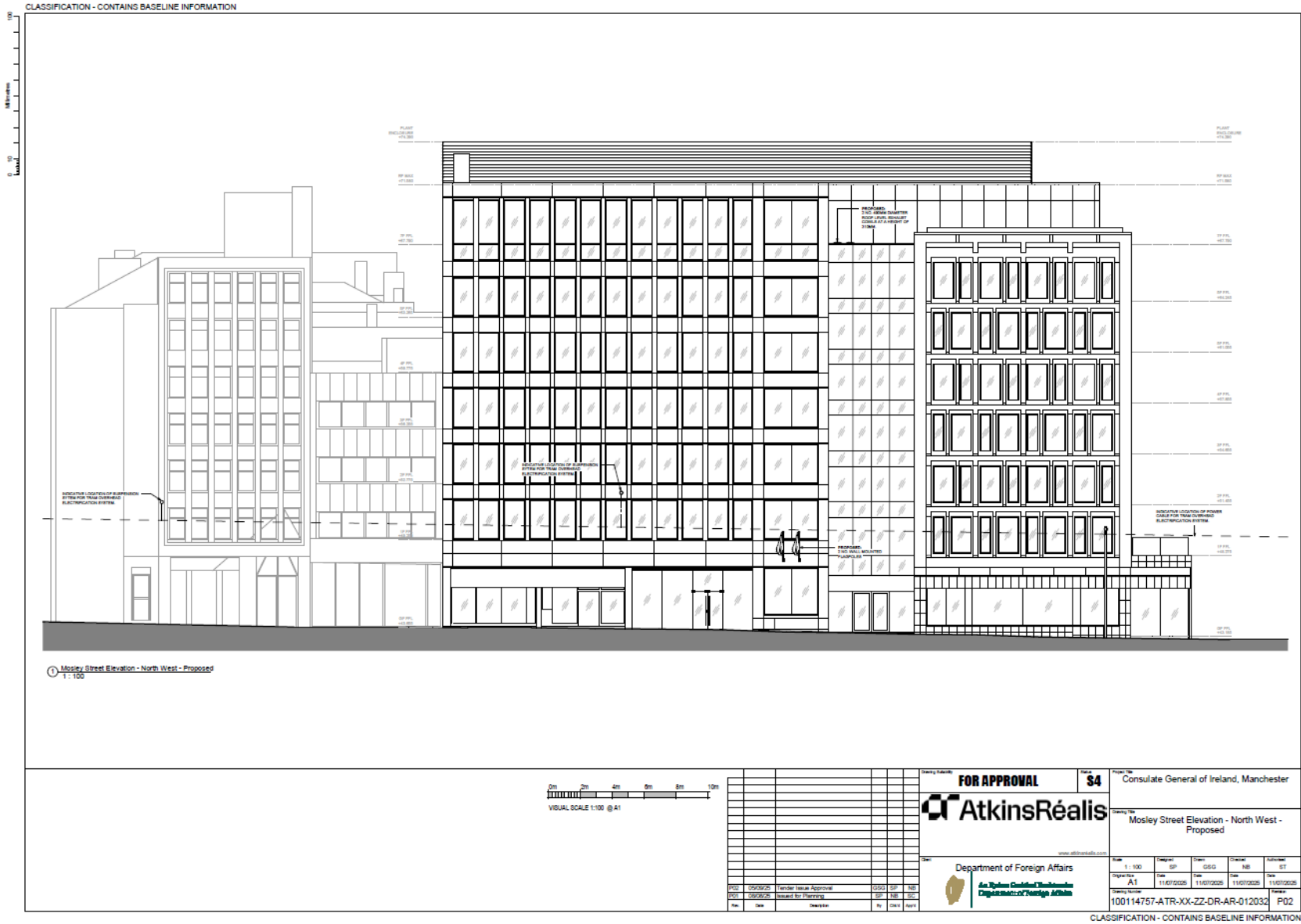
Figure 2: Photograph showing Monitoring Position 2



Proposed Floor Plans



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Technical Datasheets



XBC55 HORIZONTAL HEAT EXCHANGE UNITS PERFORMANCE & TECHNICAL INFORMATION

XBC55 FAN - SOUND DATA

Fan Speed	Sound Power Levels (dB re 1 pW)	Frequency (Hz)								Spherical dBA@3m	Fan Speed	External Static Pressure (Pa)								Spherical dBA@3m
		63	125	250	500	1000	2000	4000	8000			63	125	250	500	1000	2000	4000	8000	
100%	Induct Intake	81	74	75	63	64	61	53	41	35	50%	66	59	60	48	49	46	38	26	20
	Induct Supply	85	80	84	71	72	70	66	61			70	65	69	56	57	55	51	46	
	Induct Discharge	86	81	84	71	72	71	66	63			71	66	69	56	57	56	51	48	
	Induct Extract	82	75	75	63	64	62	53	43			67	60	60	48	49	47	38	28	
	Casing Radiated	72	65	61	47	45	43	40	28			57	50	46	32	30	28	25	13	
75%	Induct Intake	75	68	69	57	58	55	47	35	28	25%	51	44	45	33	34	31	23	< 20	<20
	Induct Supply	79	74	78	65	66	64	60	55			55	50	54	41	42	40	36	31	
	Induct Discharge	80	75	78	65	66	65	60	57			56	51	54	41	42	41	36	33	
	Induct Extract	76	69	69	57	58	56	47	37			52	45	45	33	34	32	23	< 20	
	Casing Radiated	66	59	55	41	39	37	34	22			42	35	31	<20	<20	<20	<20	<20	

*Casing Radiated (Breakout).

ATTENUATOR DIMENSIONS (mm), DYNAMIC INSERTION LOSS (dB) & WEIGHTS (kg)

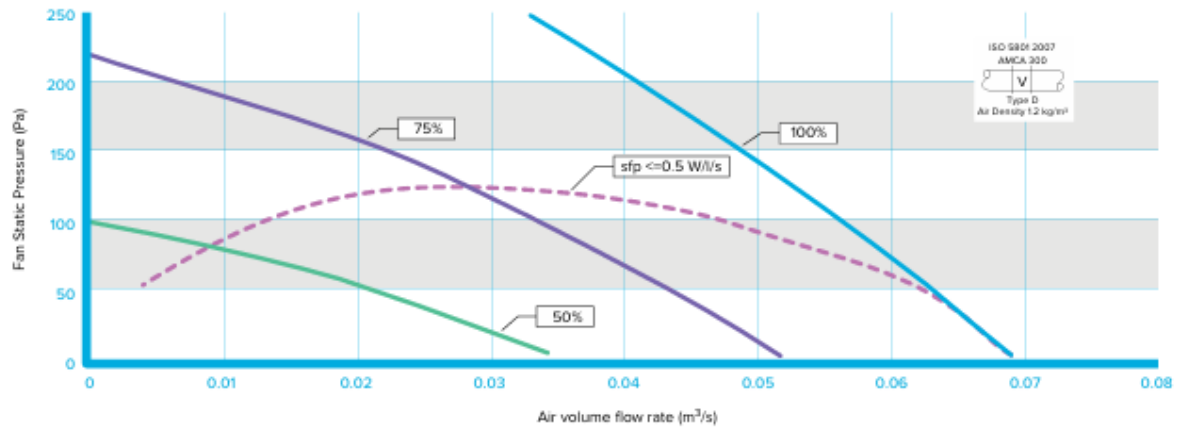
Attenuator Code	Attenuator Dimensions			Air path	Dynamic Insertion Loss (dB)								Attenuator Weight (kg)	Packed Weight (kg)
	Length	Width	Height		63	125	250	500	1000	2000	4000	8000		
XBC55-HS-MS10	1050	592	428	S / D	4	10	17	19	23	18	15	11	54	59
XBC55-HE-MS10	1050	402	428	I / E	3	6	12	15	15	11	6	4	47	50
XBC55-HS-MS12	1250	592	428	S / D	6	12	21	26	31	24	18	13	67	72
XBC55-HE-MS12	1250	402	428	I / E	5	8	16	22	23	17	9	6	57	60
XBC55-HS-MS16	1600	592	428	S / D	8	14	25	33	37	30	21	15	84	89
XBC55-HE-MS16	1600	402	428	I / E	7	10	20	29	29	23	12	8	71	74

S / D = Supply / Discharge I / E = Intake / Extract. Coding: The S / D denotes the type of silencer required for the supply or discharge. The I / E denotes the type of silencer required for the extract or fresh air intake on the unit. All XBC matched silencers are double skinned.



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DAVE EXTRACT FANS (SIZE DE1 UNIT) PERFORMANCE & TECHNICAL INFORMATION



EXTRACT FAN SIZE DE1 - PERFORMANCE

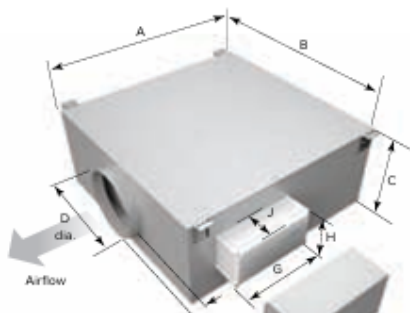
FAN SPEED		EXTERNAL STATIC PRESSURE (Pa)					
		0	50	100	150	200	250
100%	Airflow (m³/s)	0.069	0.063	0.056	0.049	0.041	0.033
	SFP (W/l/s)	0.459	0.511	0.582	0.676	0.817	1.024
75%	Airflow (m³/s)	0.0518	0.043	0.033	0.022	0.006	
	SFP (W/l/s)	0.258	0.320	0.423	0.648	2.363	
50%	Airflow (m³/s)	0.034	0.02				
	SFP (W/l/s)	0.115	0.204				

For accurate figures, please refer to Nuair Fan Selection Programme at www.nuair.co.uk, alternatively call Nuair on (029 2085 8200).

UNIT CODE	VOLTAGE/PHASE FREQUENCY	INPUT POWER (kW)	FLC/SC (A)	FAN SPEED (RPM)	UNIT WEIGHT (KG)	PACKED WEIGHT (KG)	PALLET/CRATE DIMENSIONS (mm)
DE1-ES	230 / 1 / 50	0.03	0.27 / 0.27	3770	25	30.5	800 L x 1000 W x 389 H
DE1A-ES	230 / 1 / 50	0.03	0.27 / 0.27	3770	30	35.5	1200 L x 1000 W x 389 H

EXTRACT FAN SIZE DE1 - SOUND DATA

UNIT CODE		SOUND POWER LEVELS dB re 1pW								BREAKOUT dBA @ 100% @ 3m	LwA	BREAKOUT dBA @ 75% @ 3m	BREAKOUT dBA @ 50% @ 3m
		63	125	250	500	1K	2K	4K	8K				
DE1-ES	Induct Inlet	71	62	63	53	51	46	45	43	22	59	16	<16
	Induct Outlet	73	66	68	62	56	51	50	44		64		
	Breakout	53	52	46	42	31	28	25	12		43		
DE1A-ES	Induct Inlet	70	56	55	41	37	36	40	35	17	51	<16	<16
	Induct Outlet	73	67	62	57	53	50	50	44		61		
	Breakout	52	50	39	34	23	23	22	7		38		



EXTRACT FAN SIZE DE1 - DIMENSIONS (mm)

MODEL					ECOSMART CONTROL		
	A	B	C	D (Dia)	G	H	J
DE1-ES	605	559	233	150	370	150	100
DE1A-ES	1005	559	233	150	370	150	100

Access for Maintenance: Allow 233mm either above or below the unit.

For control box access allow a minimum clearance of 600mm from a wall or barrier.

Removable weatherproof control cover (if required).

Dimensions: 470mm wide x 470mm high x 170mm deep



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LDC 150-300 Silencer

Item number: #53723



Easily-fitted silencer for circular ducts where noise reduction is paramount

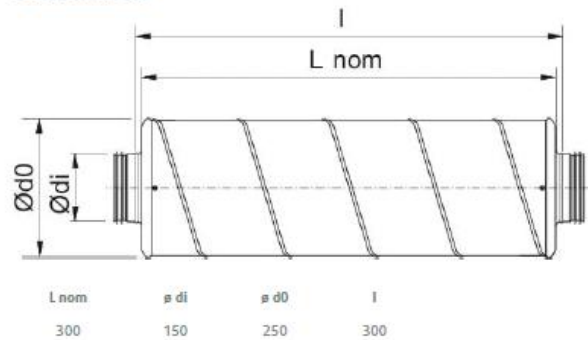
- Easy Fitting
- Noise Reduction
- Circular Ducts
- Compliant

[Find more details in our online catalogue](#)

Technical parameters

Dimensions and weights	
Duct dimension; Circular, inlet	150 mm
Duct dimension; Circular, outlet	150 mm
Length	300 mm
Weight	3 kg

Dimension



Acoustic

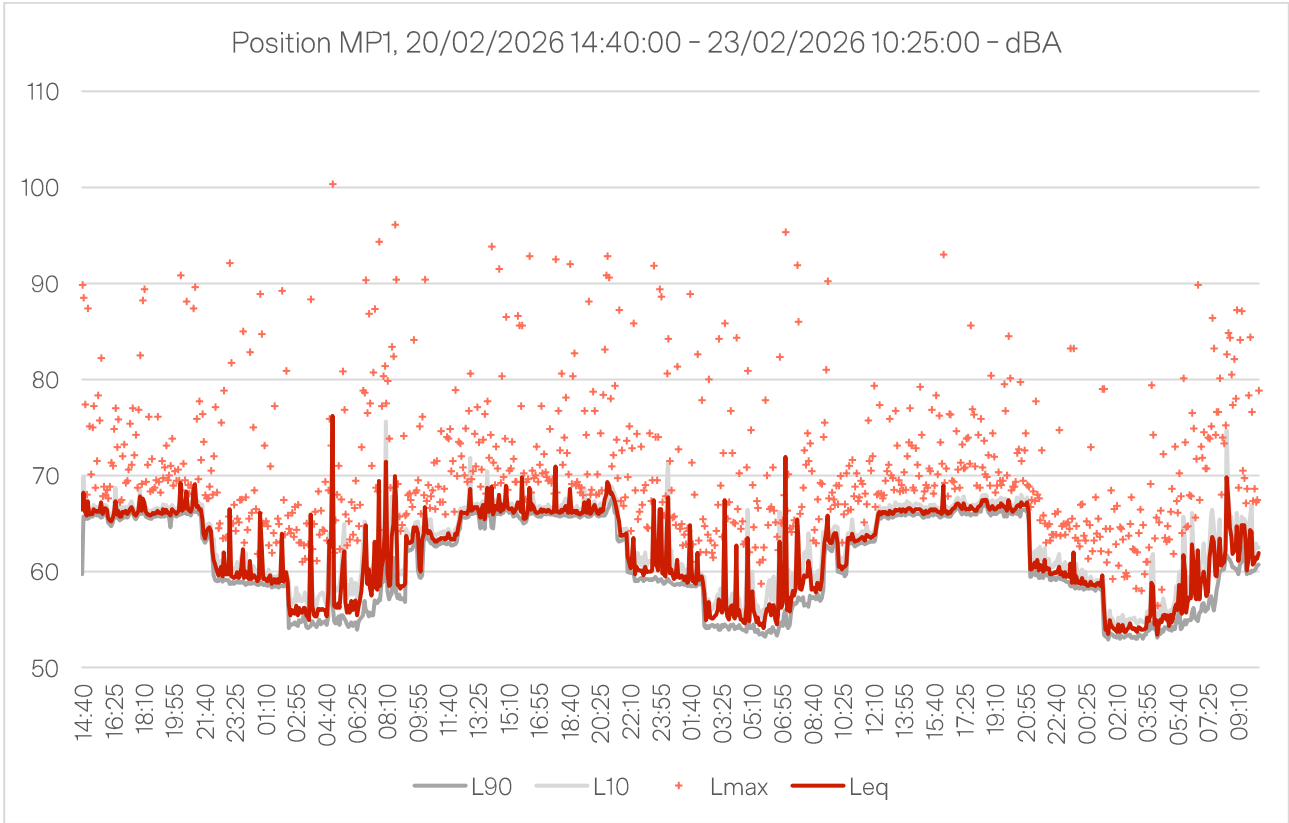
	63	125	250	500	1k	2k	4k	8k
LDC 100-300	2	2	6	14	21	25	20	11
LDC 100-600	4	3	11	24	36	49	34	17
LDC 100-900	5	4	15	34	50	50	48	23
LDC 100-1200	6	5	19	45	50	50	50	29
LDC 125-300	2	2	6	13	16	20	15	10
LDC 125-600	3	3	9	23	30	40	22	14
LDC 125-900	4	4	12	33	45	50	30	17
LDC 125-1200	5	5	15	43	50	50	38	21
LDC 150-300	1	2	4	10	12	15	8	8
LDC 150-600	-	3	7	20	27	31	16	11



Measurement Results

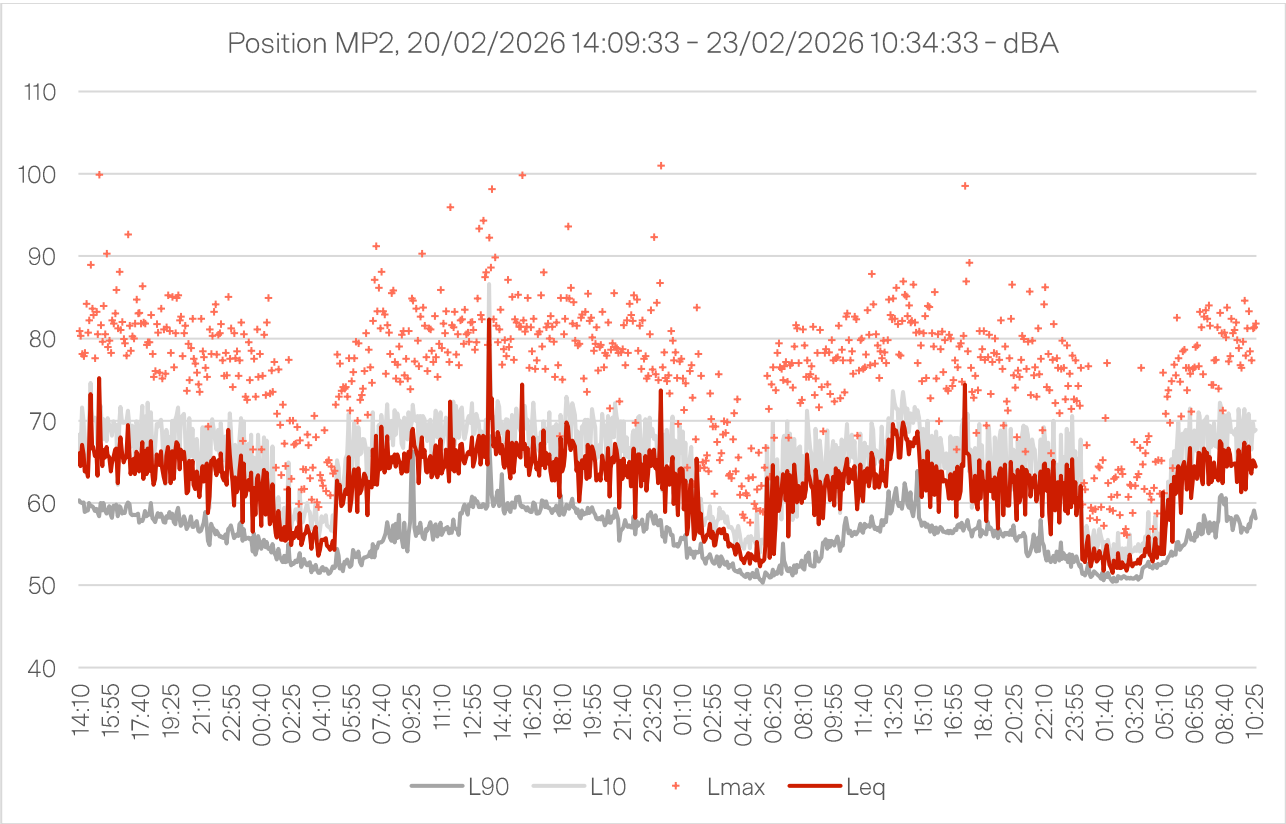
Monitoring Position 1

Monitoring position	Day	Time Period	Time Base T (hours)	$L_{Aeq,T}$ (dB)	L_{AFmax} (dB)	L_{A90} (dB)	L_{A10} (dB)
1	Friday	09:00 – 17:30	8.5hr	66.3	89.8	65.1	66.6
	Saturday	09:00 – 17:30	8.5hr	65.7	93.8	62.2	67.0
	Sunday	09:00 – 17:30	8.5hr	65.3	93.0	59.9	66.5
	Monday	09:00 – 17:30	8.5hr	62.9	87.2	59.7	64.8



Monitoring Position 2

Monitoring position	Day	Time Period	Time Base T (hours)	$L_{Aeq,T}$ (dB)	L_{AFmax} (dB)	L_{A90} (dB)	L_{A10} (dB)
1	Friday	09:00 – 17:30	8.5hr	66.9	99.9	58.5	67.5
	Saturday	09:00 – 17:30	8.5hr	67.9	99.8	56.2	68.2
	Sunday	09:00 – 17:30	8.5hr	64.5	87.8	55.1	67.7
	Monday	09:00 – 17:30	8.5hr	65.0	84.6	56.7	66.6



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Vent Duct Calculations – Pre-mitigation

Discharge	1/1 Octave Centre Frequencies (Hz) dB								dBA
	63	125	250	500	1k	2k	4k	8k	
SWL of fan	80	75	78	65	66	65	60	57	-
Allowance for end reflection 1000mm	-8	-4	-1	0	0	0	0	0	-
Elbow Attenuation	0	0	0	0	0	0	0	0	-
A-Weighting	-26	-16	-9	-3	0	1	1	-1	-
Resulting L_{wA}	46	55	68	62	66	66	61	58	-
Spherical propagation	-8	-8	-8	-8	-8	-8	-8	-8	-
Sound Pressure Level $L_{Aeq,t}$ at 1m	38	47	60	54	58	58	53	50	65

Intake	1/1 Octave Centre Frequencies (Hz) dB								dBA
	63	125	250	500	1k	2k	4k	8k	
SWL of fan	75	68	69	57	58	55	47	35	-
Allowance for end reflection 1000mm	-8	-4	-1	0	0	0	0	0	-
2 no. Elbow Attenuation	0	0	-16	-8	-6	-6	-6	-6	-
A-Weighting	-26	-16	-9	-3	0	1	1	-1	-
Resulting L_{wA}	41	48	43	46	52	50	42	30	-
Hemi spherical propagation	-8	-8	-8	-8	-8	-8	-8	-8	-
Sound Pressure Level $L_{Aeq,t}$ at 1m	33	40	35	38	44	42	34	22	48

Exhaust Cows	1/1 Octave Centre Frequencies (Hz) dB								dBA
	63	125	250	500	1k	2k	4k	8k	
SWL of fan	73	66	68	62	56	51	50	44	-
Allowance for end reflection 1000mm	-17	-12	-8	-4	-1	0	0	0	-
Ductwork attenuation	-0.1	-0.1	-0.1	0	0	0	0	0	-
Elbow Attenuation	0	0	0	0	-5	-8	-4	-4	-
A-Weighting	-5	-5	-5	-5	-5	-5	-5	-5	-
Resulting L_{wA}	25	33	46	50	45	39	42	36	-
Hemi spherical propagation	-5/8	-5/8	-5/8	-5/8	-5/8	-5/8	-5/8	-5/8	-
Sound Pressure Level $L_{Aeq,t}$ at 1m	25	33	46	50	45	39	42	36	53/50



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Vent Duct Calculations – Post Mitigation

Discharge	1/1 Octave Centre Frequencies (Hz) dB								dBA
	63	125	250	500	1k	2k	4k	8k	
SWL of fan	80	75	78	65	66	65	60	57	-
Allowance for end reflection 1000mm	-8	-4	-1	0	0	0	0	0	-
Elbow Attenuation	0	0	0	0	0	0	0	0	-
Silencer Insertion Loss	-4	-10	-17	-19	-23	-18	-15	-11	-
A-Weighting	-26	-16	-9	-3	0	1	1	-1	-
Resulting L_{wA}	42	45	51	43	43	48	46	47	-
Spherical propagation	-8	-8	-8	-8	-8	-8	-8	-8	-
Sound Pressure Level $L_{Aeq,t}$ at 1m	34	37	43	35	35	40	38	39	48

Exhaust Cows	1/1 Octave Centre Frequencies (Hz) dB								dBA
	63	125	250	500	1k	2k	4k	8k	
SWL of fan	73	66	68	62	56	51	50	44	-
Allowance for end reflection 1000mm	-17	-12	-8	-4	-1	0	0	0	-
Ductwork attenuation	-0.1	-0.1	-0.1	0	0	0	0	0	-
Elbow Attenuation	0	0	0	0	-5	-8	-4	-4	-
Silencer Insertion Loss	-1	-2	-4	-10	-12	-15	-8	-8	-
A-Weighting	-5	-5	-5	-5	-5	-5	-5	-5	-
Resulting L_{wA}	29	36	47	45	38	29	39	33	-
Hemi spherical propagation	-5/8	-5/8	-5/8	-5/8	-5/8	-5/8	-5/8	-5/8	-
Sound Pressure Level $L_{Aeq,t}$ at 1m	24	31	42	40	33	24	34	28	45/42



Glossary of Acoustical Terms

A-weighting

Noise levels are corrected to represent human response to sound.

L_{Aeq}

This is a continuous equivalent of time varying noise, or effectively the average measured (A weighted) noise level over a defined period of time.

$L_{Aeq,16hour}$

A 16 hour long measurement of the L_{Aeq} over the period between 07:00 and 23:00, also known as a daytime measurement.

$L_{Aeq,8hour}$

An 8 hour long measurement of the L_{Aeq} over the period between 23:00 and 07:00, also known as a night time measurement.

L_{AFmax}

The highest, or maximum A-weighted sound pressure level measured over a specified time period. The 'F' defines a time weighting in Fast.

L_{A90}

The A-weighted noise level or average level which is exceeded for 90 percent of the measured time period. Also known as a background level.

L_{A10}

The A-weighted noise level or average level which is exceeded for 10 percent of the measured time period.

1:1 & 1:3 octave spectrum analysis

A single measurement that is separated into frequency bands to allow for a more detailed analysis of the noise source in question.

R_w

The weighted sound reduction index of a partition or facade. A single number value based on the performance of a partition between two rooms across the frequency range 100Hz to 3150Hz. The level is adjusted for the effects of reverberation and background noise.



$D_{n,e,w}$

The weighted level difference of a partition or façade which takes into account a small element such as a grill or vent.

SEL (sound exposure level)

A measure of A-weighted sound energy used to describe a particular event, such as a train pass. It is the sound energy, which, if occurring over one second would contain the same energy as the event.

Free field sound pressure

Is where the radiation or spread of sound is completely unaffected by the presence of any reflecting surfaces or boundaries.

Low Frequency Noise

A term generally used for sound below a frequency of 100 to 150Hz.





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