

Ref: 1424/le/02

13 May 2024

Talat Zeria
HSH Engineering Design Services Ltd
428 Cheetham Hill Road
Cheetham
Manchester
M8 9LE



2nd Floor 3 Hardman Square
Spinningfields Manchester M3 3EB

☎ 0161 457 0515 ■ 07415 151 901
✉ Enquiry@LighthouseAcoustics.co.uk
🌐 www.LighthouseAcoustics.co.uk

By email to: talat.zeria@hotmail.co.uk

Dear Talat,

65 WINDSOR ROAD, PRESTWICH, MANCHESTER ACOUSTIC CONSULTANCY SERVICES

Further to our recent site visit to the above site we are pleased to present our findings below.

1.0 Introduction

It is understood that complaints have been received from the resident of the adjacent residential flat regarding plant noise emissions from the installed kitchen extract fan and condenser unit serving the coffee shop. Lighthouse Acoustics has been appointed to propose mitigation measures in order to reduce plant noise emission levels.

2.0 Objectives

To establish the Local Authority's acoustic requirements for the installed kitchen extract fan and condenser unit.

To visit site to undertake manned measurements of atmospheric sound emissions from the installed kitchen extract fan and condenser unit and measurements of representative background sound levels at the complainant's property.

To undertake an assessment of atmospheric sound emission levels from the installed kitchen extract fan and condenser unit upon the complainant's property and to propose attenuation measures where required in order to achieve the requirements of the Local Authority.

3.0 Site Description

65 Windsor Road, Prestwich, Manchester comprises a 2 storey end terrace with café and kitchen at ground floor and residential flat at first floor. The site is bound by an adjoining commercial building to the north east, Windsor Road to the south east, adjacent residential flats to the south west and residential properties to the north west.

The installed kitchen extract fan is situated externally to the side of the property on the south west façade with exhaust duct terminating vertically at roof level and extract duct penetrating the south west façade of the building. The installed condenser unit is also situated externally to the side of the property on the south west façade. It is understood that the installed kitchen extract fan and condenser unit only operates during daytime hours (08:00 to 21:00 hours).

The nearest noise sensitive receptor is understood to be the adjacent residential flat situated to the south west which has a window at first floor level in the north east façade looking directly towards the installed kitchen extract fan and condenser unit.

The site plan below indicates the extent of the site and the surrounding environment.



Site plan indicating the extent of the site and the surrounding environment

4.0 Local Authority Requirements

It is understood that Bury Metropolitan Borough Council require that an assessment be carried out of building services items in accordance with BS 4142:2014 "Methods for rating and assessing industrial and commercial sound" and that the rating level should not exceed the existing background noise levels during the period which the proposed building services items are proposed to operate.

5.0 Atmospheric Plant Noise Emission Measurements

5.1 Measurements

Manned sound measurements were undertaken between 10:00 and 11:00 hours on Wednesday 9 April 2025. Measurements were undertaken of the L_{Aeq} sound pressure levels over periods of 5 minutes with the installed kitchen extract fan and condenser unit operating (due to steady noise).

Measurements were subsequently undertaken of the L_{A90} sound pressure levels over periods of 5 minutes for the background noise level (with the installed kitchen extract fan and condenser unit off). Atypical noises were excluded as far as reasonably possible.

5.2 Weather Conditions

During the survey period there was a gentle north easterly breeze (<5m/s) and the sky was scattered cloud. There was no rainfall and road surfaces were dry. The temperature was approximately 11°C.

The weather conditions during the survey period are therefore considered to be suitable for undertaking measurements of sound levels.

5.3 Measurement Position

Measurements were undertaken at the following position on-site as described in the table below.

Position	Plant Item	Location
A	Kitchen Extract Fan & Condenser Unit	In passageway between buildings at 2.5m above ground level opposite flat window

The measurement position is shown on the site plan below.



Site plan showing measurement position

Measurement Position A was selected in order obtain noise levels that were representative of those at the adjacent residential flat situated to the south west which has a window at first floor level in the north east façade looking directly towards the installed kitchen extract fan and condenser unit.

5.4 Equipment

The following equipment was used to undertake the atmospheric plant noise emission level measurements.

Equipment	Manufacturer	Model	Serial No.	Calibration Date
Class 1 Sound Level Meter	Brüel & Kjær	2250	2626230	01/11/2024
Preamplifier	Brüel & Kjær	ZC-0032	21309	01/11/2024
Microphone	Brüel & Kjær	4189	2621208	04/11/2024
Class 1 Sound Calibrator	Casella	120/1	3864878	31/10/2024

Field calibration checks were performed on the sound level meter prior to and on completion of the survey and were found to be within acceptable tolerance limits.

6.0 Results

The results of the atmospheric plant noise emission level measurements are presented in the table below.

Position	Plant Item	Measured Sound Pressure Level (dB)
A	Kitchen Extract Fan + Condenser Unit	L_{Aeq} 61dB
	Condenser Unit Only	L_{Aeq} 58dB
	Kitchen Extract Fan Only	L_{Aeq} 57dB
	Representative Background (Plant Off)	L_{A90} 42dB

A review of the one third octave band noise data for the above measurements indicates that they are unlikely to be considered to emit tonal noise.

7.0 Discussion

With both the installed kitchen extract fan and condenser unit operating the measured L_{Aeq} atmospheric plant noise emission levels were 19dB above the representative L_{A90} background sound level. Atmospheric plant noise emission levels were clearly audible at Position A as the measurements indicate.

In order to reduce atmospheric plant noise emission levels from the installed kitchen extract fan and condenser unit to achieve the requirements of the Local Authority attenuation measures will be required.

8.0 Attenuation Measures

In order to achieve the requirements of the Local Authority at the nearest noise sensitive receptor the following attenuation measures are proposed.

8.1 Kitchen Extract Fan

8.1.1 Atmospheric Silencer

The installed kitchen extract fan shall be fitted with an atmospheric silencer as specified in the Silencer Schedule 1424/SS1 enclosed at the rear of the report.

8.1.2 Acoustic Lagging

The installed kitchen extract fan unit and all ductwork/silencers between the penetration of the facade and the exhaust end of the atmospheric silencer shall be acoustically lagged comprising 50mm (min.) mineral wool slab (min. 16kg/m³) wrapped with a polymeric heavy mass barrier material of at least 10kg/m².

8.2 Condenser Unit

Due to the location of the installed condenser unit it is not feasible to install the required acoustic enclosure since it would extend beyond the boundary of the site. As such, mitigation measures are limited to the following:

- relocation of the condenser unit to the rear of the property where there is more space to install the acoustic enclosure detailed in the Acoustic Specification for Acoustic Enclosure attached to the rear of this correspondence; or
- removal of the condenser unit from site.

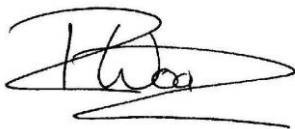
9.0 Conclusions

The Local Authority's acoustic requirements for the installed kitchen extract fan and condenser unit have been established.

A site visit has been undertaken to undertake manned measurements of atmospheric sound emissions from the installed kitchen extract fan and condenser unit and measurements of representative background sound levels at the complainant's property.

An assessment has been undertaken of atmospheric sound emission levels from the installed kitchen extract fan and condenser unit upon the complainant's property and attenuation measures have been proposed where required in order to achieve the requirements of the Local Authority.

Yours sincerely
for LIGHTHOUSE ACOUSTICS

A handwritten signature in black ink, appearing to read 'Robin Wood', with a stylized flourish underneath.

Robin Wood

Ref: 1424/SS1

Date: 13 May 2025

Revision: -

Comments: -

65 Windsor Road
Prestwich
Manchester



2nd Floor 3 Hardman Square
Spinningfields Manchester M3 3EB

☎ 0161 457 0515 ■ 07415 151 901
✉ Enquiry@LighthouseAcoustics.co.uk
🌐 www.LighthouseAcoustics.co.uk

Plant Ref.	Description	Inlet/Outlet	Vol. (m³/s)	Typical Length (mm)	Face Velocity (m/s)	Pressure Drop (Pa)	Insertion Loss (dB) at Octave Band Centre Frequency (Hz)							
							63	125	250	500	1k	2k	4k	8k
-	Kitchen Extract Fan	Exhaust	-	1200	<5.0	<55	5	9	16	29	34	26	18	11

**65 Windsor Road
Prestwich
Manchester**



2nd Floor 3 Hardman Square
Spinningfields Manchester M3 3EB

☎ 0161 457 0515 ■ 07415 151 901
✉ Enquiry@LighthouseAcoustics.co.uk
🌐 www.LighthouseAcoustics.co.uk

Acoustic Specification for Acoustic Louvred Enclosure

Location

The acoustic louvred enclosure shall fully enclose the 1No. condenser unit on all sides. The lid to the enclosure may be formed from either acoustic louvres or an imperforate construction with a minimum mass per unit area of 15kg/m².

Sound Insulation

The acoustic louvred enclosure shall provide the following minimum sound transmission loss performance when tested in accordance with BS EN ISO 10140-2:2010.

Sound Transmission Loss (dB) at Octave Band Centre Frequency (Hz)							
63	125	250	500	1k	2k	4k	8k
6	7	10	12	18	18	14	13

Construction

The acoustic louvres shall typically have a depth of 300mm and be constructed from galvanised/plastic coated steel or aluminium with perforated galvanised/plastic coated steel or aluminium to the lower blade face.

The sound absorbent infill shall have a density of at least 45kg/m³. It should be non-hygroscopic, incombustible, chemically inert and be faced with a protective membrane to prevent fibre migration.

All joints between the panels of the acoustic louvres and at junctions between the acoustic louvred enclosure and adjacent structures shall be made good and sealed with non-setting mastic.

The acoustic louvred enclosure shall be designed and constructed to withstand appropriate wind and snow loads and shall be suitably weatherproofed.