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Joanne Ooi
Hammond Projects



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: joanneeeooi@gmail.com

Dear Joanne

UNITS 2 & 3, NO.8 FIRST STREET, MANCHESTER OPERATIONAL SOUND LEVELS

Further to our recent visit to the above site we are pleased to confirm our findings as detailed below.

1.0 Introduction

Units 2 & 3 are currently vacant within No.8 First Street, Manchester. Lighthouse Acoustics has been appointed by Hammond Projects to establish the existing level of sound insulation provided by the separating walls/floors between Units 2 & 3 and adjoining reception/office space and to calculate operational noise limits.

2.0 Objectives

To visit site in order to measure the existing level of sound insulation provided by the separating walls/floors between Units 2 & 3 and adjoining reception/office space.

To calculate operational noise limits within Units 2 & 3 and propose mitigation measures if required in order to achieve the requirements of the Landlord in the adjoining reception/office space.

3.0 Operational Sound Transfer

3.1 Site Description

Units 2 & 3 are situated at ground floor level of No.8 First Street, Manchester and adjoins the reception space at ground floor and mezzanine levels, office space at mezzanine level and office space at 1st floor level.

3.2 Measurements

Lighthouse Acoustics visited the vacant Units 2 & 3 and adjoining reception/office space within No.8 First Street, Manchester on 22 January 2025.

Measurements were undertaken of the airborne sound insulation performance of the existing separating wall/floor constructions between Units 2 & 3 and adjoining reception/office space as detailed in the table below.

Source	Receive	Element
Ground Floor Unit 2	Ground Floor Reception*	Separating Wall
Mezzanine Unit 2	Ground Floor Reception*	Separating Wall
Mezzanine Unit 2	Mezzanine Office	Separating Wall
Mezzanine Unit 2	1 st Floor Office	Separating Floor
Ground Floor Unit 3*	1 st Floor Office	Separating Floor

* Double height space.

3.3 Equipment

The following equipment was used to undertake the sound insulation test 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
10" Active Loudspeaker with Vented Cabinet	Yamaha	DBR10	-	-
12" Active Loudspeaker with Vented Cabinet	Yamaha	DXR12	-	-

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.

3.4 Results

The results of the airborne sound insulation performance measurements are presented in the table below.

Element	Level Difference, D (dB) at Octave Band Centre Frequency (Hz)							
	63	125	250	500	1k	2k	4k	8k
GF Unit 2 to GF Reception (Wall)	25	27	42	48	54	49	47	49
Mezz Unit 2 to GF Reception (Wall)	22	27	33	36	43	49	46	46
Mezz Unit 2 to Mezz Office (Wall)	18	24	35	38	47	49	54	58
Mezz Unit 2 to 1 st Office (Floor)	33	31	41	53	58	64	70	68
GF Unit 3 to 1 st Office (Floor)	29	31	42	52	57	60	66	67

3.5 Proposed Layout

The assessment has been based on the following drawings.

Author	Drawing No.	Revision	Date
Xianghua Space Design	Ground Floor	P-01	-
	Mezzanine	P-02	-

The proposals include the combining of Units 2 & 3 to form a lobby, bar, kitchen and restaurant at ground floor with restaurant, toilets and store at mezzanine level.

3.6 Landlord Requirements

Noise transfer from Tenants operations/live/amplified music shall not exceed the following limiting L_{max} sound pressure levels at any position in the adjoining reception/office space.

Space	Limiting L_{max} Sound Pressure Level (dB) at Octave Band Centre Frequency (Hz)								dBA
	63	125	250	500	1k	2k	4k	8k	
Ground Floor Reception	48	48	45	41	37	32	36	36	44
Mezzanine Office	39	37	36	34	28	26	20	18	35
1 st Floor Office	32	29	24	17	15	13	14	16	23

3.7 Limiting Operational Sound Levels

Based on the results of the airborne sound insulation performance measurements and the Landlord requirements the following limiting operational sound pressure levels are proposed within the future combined Units 2 & 3.

Space	Limiting L_{max} Operational Sound Pressure Level (dB) at Octave Band Centre Frequency (Hz)								dBA
	63	125	250	500	1k	2k	4k	8k	
Restaurant	65	61	65	70	73	78	82	83	86
Toilets*	57	61	65	70	73	74	74	76	82

* Adjacent to mezzanine office.

Typical operational sound pressure levels within a restaurant with background music are detailed in the table below.

Space	Typical L _{max} Operational Sound Pressure Level (dB) at Octave Band Centre Frequency (Hz)								dBA
	63	125	250	500	1k	2k	4k	8k	
Restaurant with background music	75	78	77	81	79	76	72	66	84

Comparing the typical operational sound pressure levels to the proposed limiting operational sound pressure levels, the following exceedances can be seen.

Sound Level	L _{max} Sound Pressure Level (dB) at Octave Band Centre Frequency (Hz)								dBA
	63	125	250	500	1k	2k	4k	8k	
Typical Operational Sound Level	75	78	77	81	79	76	72	66	84
Limiting Operational Sound Level	65	61	65	70	73	78	82	83	86
Exceedance	+10	+17	+13	+11	+6	-1	-10	-16	-

As such, mitigation measures are likely to be required in order to minimise the impact on occupants of the adjoining spaces.

3.8 Mitigation Measures

In order to minimise the impact of operational sound on occupants of the adjoining spaces the following mitigation measures are proposed for consideration:

- Acoustic wall lining to separating wall between restaurant space and reception comprising independent studwork, 50mm mineral wool between studwork and 2No. layers of plasterboard (min. 10kg/m² per board);
- Acoustic column linings to columns within the restaurant space comprising independent studwork, 50mm mineral wool between studwork and 2No. layers of plasterboard (min. 10kg/m² per board);
- Acoustic ceiling to underside of 1st floor slab within the restaurant space comprising acoustic hangers to form a min. 200mm depth ceiling void, 100mm mineral wool within ceiling void, metal frame and 2No. layers of plasterboard (min. 10kg/m² per board);
- Reduced amplified music levels within the restaurant space particularly at low frequencies (i.e. 63Hz & 125Hz).

Acoustic wall linings and acoustic column linings should be built prior to the installation of the acoustic ceiling.

The above mitigation measures are detailed on the following drawing.

Author	Drawing No.	Revision	Date
Hammond Projects	A115	-	28/04/2025

4.0 Operational Sound Breakout

4.1 Measurements

Lighthouse Acoustics visited the vacant Units 2 & 3 and adjoining reception/office space within No.8 First Street, Manchester on 22 January 2025.

Measurements were undertaken of the airborne sound insulation performance of the existing facade construction between Units 2 & 3 and external as detailed in the table below.

Source	Receive	Element
Ground Floor Unit 2	External	External Facade

4.2 Equipment

The following equipment was used to undertake the sound insulation test 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
10" Active Loudspeaker with Vented Cabinet	Yamaha	DBR10	-	-
12" Active Loudspeaker with Vented Cabinet	Yamaha	DXR12	-	-

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.

4.3 Results

The results of the airborne sound insulation performance measurements are presented in the table below.

Element	Level Difference, D (dB) at Octave Band Centre Frequency (Hz)							
	63	125	250	500	1k	2k	4k	8k
GF Unit 2 to External (Façade)	25	26	30	32	35	36	43	49

Note: With external doors closed – correction will be applied for an open door.

4.4 Proposed Layout

The assessment has been based on the following drawings.

Author	Drawing No.	Revision	Date
Xianghua Space Design	Ground Floor	P-01	-
	Mezzanine	P-02	-

The proposals include the combining of Units 2 & 3 to form a lobby, bar, kitchen and restaurant at ground floor with restaurant, toilets and store at mezzanine level.

4.5 Landlord Requirements

Noise breakout from Tenants operations/live/amplified music via the façade shall not exceed the maximum allowable cumulative daytime and night time free-field noise levels at the closest residential façades as detailed in Section 8.0 of the Environmental Noise Study report produced by Fisher Acoustics, P0502-REP01A-MPF, dated March 2015.

The table below is taken from the report and identifies the maximum allowable cumulative daytime and night time free-field noise levels at the closest residential façades due to Tenants operations/live/amplified music in order to comply with the guidance of Manchester City Council.

Location/Period	Leq Sound Pressure Level (dB) at Octave Band Centre Frequency (Hz)							
	63	125	250	500	1k	2k	4k	8k
VITA, (0700 to 2300)	51	45	43	39	43	36	23	-
VITA (2300 to 0700)	45	41	36	31	33	27	15	-
Premier Inn, (0700 to 2300)	54	49	46	46	49	43	34	-
Premier Inn (2300 to 0700)	48	50	42	43	42	40	35	-
River City (0700 to 2300)	40	43	41	41	43	36	23	-
River City (2300 to 0700)	42	35	32	31	32	24	12	-
Hill Quays (0700 to 2300)	45	38	34	34	36	29	15	-
Hill Quays (2300 to 0700)	41	36	31	30	29	22	13	-
Innside Hotel (0700 to 2300)	50	42	40	37	41	35	22	-
Innside Hotel (2300 to 0700)	45	39	33	30	31	24	13	-
City South (0700 to 2300)	49	43	40	40	44	37	26	-
City South (2300 to 0700)	43	41	34	33	35	30	25	-

4.6 Limiting Operational Sound Levels

Based on the results of the airborne sound insulation performance measurements and the Landlord requirements the following limiting operational sound pressure levels are proposed within the future combined Units 2 & 3.

Space	Limiting L_{eq} Operational Sound Pressure Level (dB) at Octave Band Centre Frequency (Hz)								dBA
	63	125	250	500	1k	2k	4k	8k	
Restaurant	92	88	84	89	81	75	63	58	88

Assuming a single set of external doors which open for access.

Note: The limits in Section 3.7 for operational sound transfer to adjoining spaces are more onerous than these limits and take priority.

Typical operational sound pressure levels within a restaurant with background music are detailed in the table below.

Space	Typical L_{eq} Operational Sound Pressure Level (dB) at Octave Band Centre Frequency (Hz)								dBA
	63	125	250	500	1k	2k	4k	8k	
Restaurant with background music	65	68	68	71	69	66	61	55	73

Comparing the typical operational sound pressure levels to the proposed limiting operational sound pressure levels, the following exceedances can be seen.

Sound Level	L_{eq} Sound Pressure Level (dB) at Octave Band Centre Frequency (Hz)								dBA
	63	125	250	500	1k	2k	4k	8k	
Typical Operational Sound Level	65	68	68	71	69	66	61	55	73
Limiting Operational Sound Level	92	88	84	89	81	75	63	58	88
Exceedance	-27	-20	-16	-18	-12	-9	-2	-3	-

As such, mitigation measures are unlikely to be required to the external façade (assuming a single set of external doors which open for access) in order to comply with the guidance of Manchester City Council.

5.0 Amplified Music

Amplified music noise levels shall be limited by means of an electronic noise limiter/compressor. The device should be capable of limiting individual octave bands over the frequency range 20Hz to 20kHz and controlling the number of speakers/zones required. The device should be lockable once set to prevent tampering. In order to set the device a commissioning survey will be required in conjunction with the audio engineer and Lighthouse Acoustics.

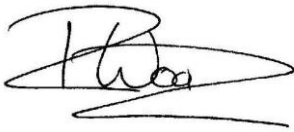
This should be undertaken upon completion of the fit out works but prior to operation of the commercial unit and the results shall be submitted to the Landlords acoustic consultant for approval prior to operation. No speakers are permitted externally.

6.0 Vibration

Vibration from Tenants operations, live/amplified music and mechanical services plant shall not exceed the maximum levels described in Curve 4 of Figure 4 in BS 6472: 1992 "Evaluation of human exposure to vibration in buildings (1Hz to 80Hz)" at any position within the adjacent reception/office space. The full proposals shall be submitted to the Landlords acoustic consultant for approval prior to commencement of fit-out works.

We trust the above to be clear and of assistance, however, should you have any queries please do not hesitate to contact me.

Yours sincerely
for LIGHTHOUSE ACOUSTICS

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

Robin Wood