



REPORT REFERENCE:

SA – 7710 M&E-01

INTERNAL

RIBA STAGE E4 ASSESSMENT

CLIENT:

Alumno Developments

SITE:

Moss Lane East

Manchester

M14 4PJ

Report Presented By

Mr. B. J. Scrivener MIOA.

A handwritten signature in black ink, appearing to be 'B. J. Scrivener'.

Sound Advice Acoustics Ltd

2 West Links, Tollgate, Chandlers Ford, Hampshire, SO53 3TG

Tel: 02380 641357

soundadviceacoustics.co.uk

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1 INTRODUCTION

Sound Advice Acoustics Ltd was instructed to carry out a full assessment of the proposed development at Moss Lane East, Manchester, in accordance with our RIBA Stage E programme.

This report is to evaluate the information supplied by the client with regards to the above development within the following sectors of the build:-

✓ Internal Ventilation & NR Levels to Rooms

The M & E roof mounted plant are to be assessed both externally at the development and internally within the building structure itself. Calculations and assessment are to be made to ensure the proposed plant does not have a detrimental acoustic impact to either the proposed new residents within the development or the existing noise sensitive locations surrounding the development. With regards to external noise levels, evaluations and assessments are to be carried out in order to demonstrate compliance with our original noise level design criteria set within our noise report dated April 2024.

2 INTERNAL AMBIENT ACOUSTIC CRITERIA

The following criteria has been adopted from the CIBSE Guidelines

Location	Target Maximum NR Level
Bedrooms	NR 25
Bathrooms	NR 45
Kitchens	NR 45
Kitchen / Diners	NR 45

3 INTERNAL NOISE LEVEL CALCULATIONS

3.1 Proposed Plant

The following MEV Units have been proposed and the calculated Boost operational noise levels supplied by Shaw Contracts (M&E Consultant), to which all calculations and assessments have been made.

MEV ID	Sound Power Levels							
	63	125	250	500	1.0k	2.0k	4.0k	8.0k
MEV/01/01	62	65	63	68	58	51	49	48
MEV/01/01	62	64	61	66	65	62	55	53
MEV/01/01	55	57	55	53	47	46	44	41
MEV/01/02	45	57	62	67	55	50	42	40
MEV/01/02	51	60	65	69	62	59	46	45
MEV/01/02	47	50	52	52	41	38	32	28
MEV/01/03	42	56	58	62	51	45	38	37
MEV/01/03	48	58	62	65	58	54	41	41
MEV/01/03	44	48	49	48	38	34	30	27
MEV/01/04	45	57	62	67	55	50	42	40
MEV/01/04	50	60	65	69	62	59	46	45
MEV/01/04	47	50	52	52	41	38	32	28
MEV/01/05	64	67	66	72	61	54	52	51
MEV/01/05	64	66	64	70	68	66	59	56
MEV/01/05	57	59	57	56	50	48	47	42
MEV/01/06	41	55	57	61	50	44	36	36
MEV/01/06	48	58	61	64	57	53	40	39
MEV/01/06	43	48	48	47	37	33	29	27
MEV/01/07	45	57	62	67	55	50	42	40
MEV/01/07	51	60	65	69	62	59	46	45
MEV/01/07	47	50	52	52	41	38	32	28
MEV/01/08	54	59	60	61	51	45	40	41
MEV/01/08	53	60	62	61	57	55	48	46
MEV/01/08	58	54	50	48	43	39	36	34
MEV/01/09	42	56	58	62	51	45	38	37
MEV/01/09	48	58	62	65	58	54	41	41
MEV/01/09	44	48	49	48	38	34	30	27

MEV/01/10	42	56	58	61	51	45	38	37
MEV/01/10	48	58	62	65	58	54	41	41
MEV/01/10	44	48	49	48	38	34	30	27
MEV/01/11	39	54	54	56	46	39	32	32
MEV/01/11	45	56	58	60	53	48	35	35
MEV/01/11	40	46	45	43	33	29	26	26
MEV/01/12	46	58	63	69	56	51	44	41
MEV/01/12	52	61	66	70	64	60	48	46
MEV/01/12	48	51	53	54	43	39	33	29
MEV/01/13	54	59	60	61	51	45	40	41
MEV/01/13	53	60	62	61	57	55	48	46
MEV/01/13	56	54	50	48	43	39	36	34
MEV/01/14	61	56	53	48	38	33	30	31
MEV/01/14	66	59	55	54	46	42	34	34
MEV/01/14	43	45	40	37	26	23	22	22
MEV/01/15	61	56	53	48	38	33	30	31
MEV/01/15	66	59	55	54	46	42	34	34
MEV/01/15	43	45	40	37	26	23	22	22
MEV/01/16	61	56	53	48	38	33	30	31
MEV/01/16	66	59	55	54	46	42	34	34
MEV/01/16	43	45	40	37	26	23	22	22

Detailed calculations have been carried out based on drawing number WIP - L047-SHA-57-ZZ.01-D-M-570001-C02_S4 - LEVEL 01 - PROPOSED VENTILATION LAYOUT (A0). The take into account the noise breakout from the units, through the ceiling into the rooms below, the noise travelling down the duct to atmospheric discharge and the noise travelling down the duct and emanating into the duct connecting rooms.

The following tables demonstrate the various result and requirements to ensure the proposed system meets all the necessary requirements and standards criteria.

4 UNIT BREAKOUT NOISE INTO ROOMS BELOW

MEV ID	Calculated Internal Sound Pressure Levels							
	63	125	250	500	1.0k	2.0k	4.0k	8.0k
MEV/01/01	35.3	34.3	27.3	20.3	10.3	12.3	8.3	3.3
MEV/01/02	27.3	27.3	24.3	19.3	4.3	4.3	-3.7	-9.7
MEV/01/03	21.3	22.3	18.3	12.3	-1.7	-2.7	-8.7	-13.7
MEV/01/04	27.3	27.3	24.3	19.3	4.3	4.3	-3.7	-9.7
MEV/01/05	37.3	36.3	29.3	23.3	13.3	14.3	11.3	4.3
MEV/01/06	20.3	22.3	17.3	11.3	-2.7	-3.7	-9.7	-13.7
MEV/01/07	27.3	27.3	24.3	19.3	4.3	4.3	-3.7	-9.7
MEV/01/08	38.3	31.3	22.3	15.3	6.3	5.3	0.3	-3.7
MEV/01/09	21.3	22.3	18.3	12.3	-1.7	-2.7	-8.7	-13.7
MEV/01/10	21.3	22.3	18.3	12.3	-1.7	-2.7	-8.7	-13.7
MEV/01/11	17.3	20.3	14.3	7.3	-6.7	-7.7	-12.7	-14.7
MEV/01/12	25.3	25.3	22.3	18.3	3.3	2.3	-5.7	-11.7
MEV/01/13	36.3	31.3	22.3	15.3	6.3	5.3	0.3	-3.7
MEV/01/14	20.3	19.3	9.3	1.3	-13.7	-13.7	-16.7	-18.7
MEV/01/15	20.3	19.3	9.3	1.3	-13.7	-13.7	-16.7	-18.7
MEV/01/16	20.3	19.3	9.3	1.3	-13.7	-13.7	-16.7	-18.7

The above all fall below the lowest criteria of NR 25 and therefore no further remedial works are required to the units themselves with regards to noise breakout from the units into the rooms below. These calculations have been based on the size of the various rooms and the use of a standard plasterboard ceiling finish.

5 ATMOSPHERIC DISCHARGE

MEV ID	Calculated Internal Sound Pressure Levels								dB(A)
	63	125	250	500	1.0k	2.0k	4.0k	8.0k	
MEV/01/01	34.7	36.4	30.1	29.4	14.4	11.4	18.4	16.4	29.3
MEV/01/02	24.3	33.5	35.8	33.5	12.5	9.5	10.5	9.5	32.3
MEV/01/03	21.3	31.6	32.9	29.6	8.6	4.6	5.6	5.6	28.8
MEV/01/04	23.2	33.4	35.6	33.4	12.4	9.4	10.4	9.4	32.1
MEV/01/05	37.0	39.0	34.1	34.0	13.0	11.0	18.0	15.0	32.9
MEV/01/06	21.3	31.5	31.8	28.5	7.5	3.5	4.5	3.5	27.8
MEV/01/07	24.4	33.8	36.3	33.8	12.8	9.8	10.8	9.8	32.7
MEV/01/08	26.0	32.9	31.8	24.9	6.9	4.9	11.9	9.9	26.3
MEV/01/09	21.3	31.5	32.8	29.5	8.5	4.5	5.5	5.5	28.7
MEV/01/10	21.4	31.7	33.0	29.7	8.7	4.7	5.7	5.7	28.9
MEV/01/11	18.4	29.7	29.0	24.7	3.7	-1.3	-0.3	-0.3	24.4
MEV/01/12	25.4	34.7	37.0	34.7	14.7	10.7	12.7	10.7	33.5
MEV/01/13	25.9	32.7	31.6	24.7	6.7	4.7	11.7	9.7	26.1
MEV/01/14	39.4	32.8	26.3	18.8	-3.2	-7.2	-1.2	-1.2	22.2
MEV/01/15	39.4	32.8	26.3	18.8	-3.2	-7.2	-1.2	-1.2	22.2
MEV/01/16	39.4	32.8	26.3	18.8	-3.2	-7.2	-1.2	-1.2	22.2

The above noise levels have been fed into our previous external plant assessment 3D model and have resulted in no change in the predicted resultant noise levels at the nearest noise sensitive premises. This is based on the atmospheric MEV attenuators achieving the following minimum static insertion loss values:-

Require Attenuation	Calculated Internal Sound Pressure Levels							
	63	125	250	500	1.0k	2.0k	4.0k	8.0k
Atmospheric Side	-6	-9	-14	-23	-32	-32	-18	-18

6 ROOM SIDE CALCULATED NOISE LEVELS

In order to achieve the required internal NR Levels with the various rooms, it will be necessary for the following MEV units to be fitted with room side attenuators to achieve the minimum static insertion loss values:-

MEV ID	Calculated Internal Sound Pressure Levels							
	63	125	250	500	1.0k	2.0k	4.0k	8.0k
MEV/01/01	0	0	4	15	9	5	5	6
MEV/01/02	0	0	5	16	7	2	0	0
MEV/01/03	0	0	4	14	6	0	0	0
MEV/01/04	0	0	3	14	6	4	0	0
MEV/01/05	0	0	9	21	12	5	5	4
MEV/01/06	0	0	4	14	6	2	0	0
MEV/01/07	0	0	3	14	6	2	0	0
MEV/01/08	0	0	6	13	5	0	0	0
MEV/01/09	0	0	5	15	6	0	0	0
MEV/01/10	0	0	5	15	6	0	0	0
MEV/01/11	0	0	1	9	2	0	0	0
MEV/01/12	0	0	10	22	12	9	4	2
MEV/01/13	0	0	0	7	1	0	0	0
MEV/01/14	0	0	0	0	0	0	0	0
MEV/01/15	0	0	0	0	0	0	0	0
MEV/01/16	0	0	0	0	0	0	0	0

7 Cross Talk Attenuators (if required)

It is recommended that cross talk attenuators be installed in all locations where room to room acoustics are affected by ducting. The following table demonstrates the minimum static insertion loss required by any cross talk attenuator.

	Octave Band Centre Frequency Hz							
	63	125	250	500	1.0k	2.0k	4.0k	8.0k
Minimum Attenuation Value	3	3	8	16	21	18	14	12

8 CONCLUSION

Sound Advice Acoustics Ltd was instructed to carry out a full assessment of the proposed development at Moss Lane East, Manchester, in accordance with our RIBA Stage E programme.

The assessments and calculations carried out within this assessment process have demonstrated compliance with the CIBSE guidelines provided the proposed attenuators are incorporated into the design.

END OF REPORT