

ARR/C/3565.02a Rev A

22nd October 2023

Gary Macarthur
Luxury Living
Globe House
Southall Street
Manchester
M3 1LG

Dear Gary

Apartment Measurements and Revised Comments, Globe House, M3 1LG

This report updates our report of 3rd October 2023 following the request from Planners to carry out some brief tests in a residential apartment. Much of it is repeated so as to keep the main points together in one document.

Following the Teams meeting with Council Officers on 3rd October 2023, a brief summary of our up-to-date comments was submitted. As previously I invite Lisa or other Council Officers to contact me directly with any queries and again please can all parties take these comments as “without prejudice”.

Peak Acoustics Report

The external levels were as follows.

Measurement Summary				
Measurement	Date	Daytime	Night-time	
		L _{Aeq,16hr} (dB)	L _{Aeq, 8hr} (dB)	L _{AFmax} (dB)
M1 - Front* [Façade Corrected]	4 th (11:32:38) – 5 th (11:52:38)	60.6	52.9	72.8
M2 - Rear* [Façade Corrected]	4 th (11:31:26) – 5 th (11:46:26)	55.2	50.3	68.0

These are external façade levels. Based on -15 dB for a partly open window, the above table for *inside* rooms would look something like this (our pasted figures in orange):-

Measurement Summary				
Measurement	Date	Daytime	Night-time	
		L _{Aeq,16hr} (dB)	L _{Aeq,8hr} (dB)	L _{AFmax} (dB)
M1 - Front* [Façade Corrected]	4 th (11:32:38) – 5 th (11:52:38)	46	38	58
M2 - Rear* [Façade Corrected]	4 th (11:31:26) – 5 th (11:46:26)	40	35	53

These are above MCC preferred criteria and above the BS 8233 criteria for “desirable” conditions. However, to the rear these are right on BS 8233 criteria for “reasonable” conditions and, for night time, only slightly above “reasonable” to the front as well.

The dB L_{Amax} for night time are above MCC and WHO criteria. Note that BS 8233 does not have criteria in terms of dB L_{Amax}, the reasons being that the criteria were not well researched and rarely met in urban areas.

Agreed additional Recent Measurements within Apartments

Following the issue of our report of 3rd October 2023, Planners forwarded comments from Environmental Health as follows:-

I have reviewed the additional information submitted and the calculated numbers are significantly above our criteria and so additional attenuation would be required at the development (in the lower floors which do not already have the mechanical ventilation installed).

If the applicant does not want to do additional monitoring, which may confirm that the background noise levels at the development are actually lower than those in the original report (as these do seem high for the area), then the mechanical ventilation would simply need to be installed.

If the applicant does wish to go ahead with the monitoring, in the hope that the levels will be lower in which case may avoid the need for mechanical ventilation, then we would accept facade measurements, during rush hour, along with appropriate calculations a shortened survey would be sufficient.

If the second set (new) data is higher than that which was submitted in the original application then, we would accept the lower measurements but either way in this case, additional ventilation would need to be installed as the noise levels inside the domestic premises are confirmed as high.

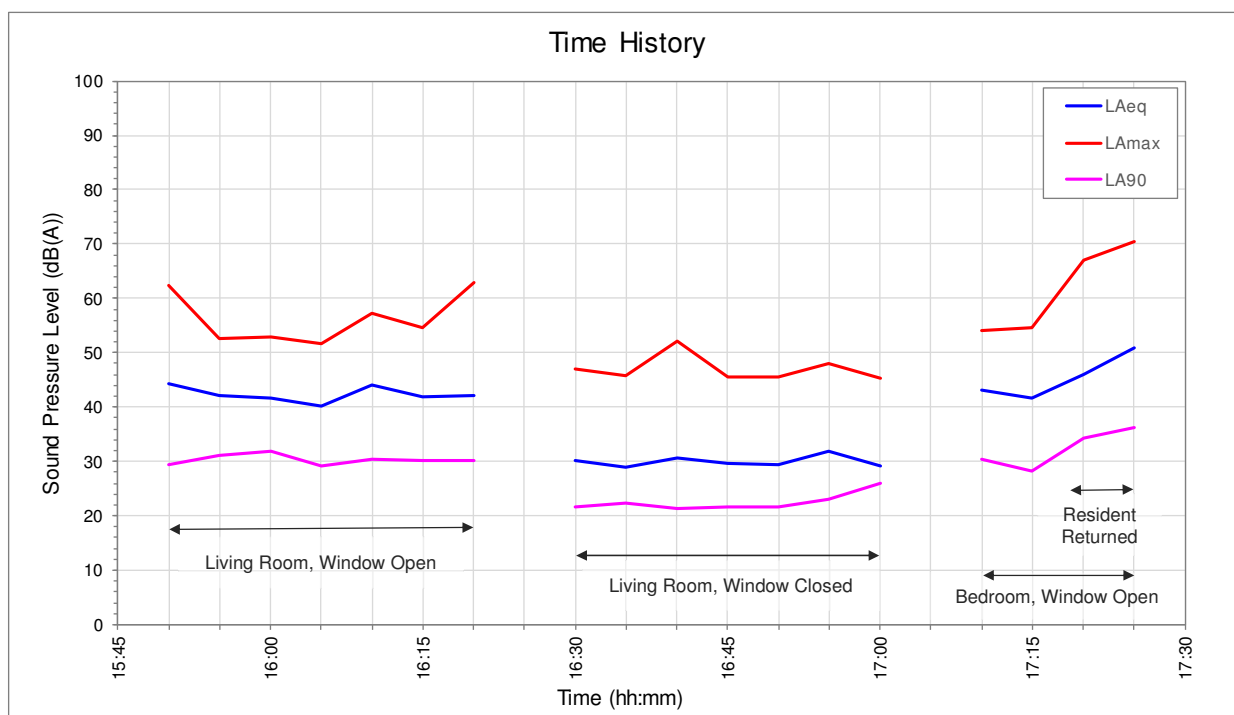
It is not clear which Officer these comments came from, as it was our understanding that Lisa was standing in for a colleague at the Teams meeting. Of course all the points were already acknowledged and discussed

in the meeting. There was no response to the arguments made about reasonable criteria in these unusual and difficult circumstances.

It was agreed that a short measurement period covering rush hour would be carried out, if an apartment could be made available. This was carried out on 16th November from shortly before 16:00 to shortly before 17:30. It was done in the living room and bedroom of Apartment 7, at first floor level, overlooking the corner of Southall St and Carnarvon St. For the sake of brevity and to avoid clutter, the fine details of the survey are in Appendix 1.

Basic Results

The basic results were as follows (full results in Appendix 2):-



Note that the graph shows the resident returning at 17:18. Our site surveyor had nipped out briefly to move his car, during which time the resident had returned, boiled the kettle, turned on the TV, and gone to take a shower. The survey was abandoned and from this point last two measurements are therefore ignored. A summary is as follows:-

Overall Levels	Index	dB(A)
Living Room, Window Open	Leq	43
	Lmax	59
	L90	30
Living Room, Window Closed	Leq	30
	Lmax	48
	L90	23
Bedroom Window Open	Leq	40
	Lmax	56
	L90	28

In general, all measurements were contaminated to some degree by the fridge (no plug or isolation switch could be found), as well as voices, footfall and audible AV in surrounding apartments.

Processing of Results

Clearly measurements at rush hour are not representative of the 07:00 to 23:00 daytime “average” and certainly not representative of the 23:00 to 07:00 night time “average”. For that reason we have derived estimates of these overall quantities as follows:-

Referring to measurements made for the new basement area from 15:00 through to 11:00 the following day (see ADC report ARR/C/3565.02b dated 20th October 2023), we can make a reasonable estimate of how the noise is likely to vary at different times.

The basement survey was carried out within the car park area, which is exposed to the pavement level via several large openings. The results from this survey at identical times to the results above were as follows.

<i>Time Period</i>	<i>Index</i>	<i>dB(A)</i>
15:50 to 16:25	Leq	61
	Lmax	74
	L90	49
16:30 to 17:05	Leq	62
	Lmax	81
	L90	48
17:10 to 17:20	Leq	62
	Lmax	75
	L90	48

Using all the measurements of that survey, the levels for the wider periods were as follows:-

<i>Time Period</i>	<i>Index</i>	<i>dB(A)</i>
Overall Daytime (mainly rush hour)	Leq	61
	Lmax	77
	L90	47
Overall Evening	Leq	55
	Lmax	72
	L90	40
Overall Night Time	Leq	51
	Lmax*	69
	Lmax**	72
	L90	39

* Log Average

** Level Exceed 15 times

We can take the difference between these two tables and apply them to the measurements made within Apartment 7 to derive the levels across the same extended periods.

<i>calculated Levels, Windows Open</i>	<i>Index</i>	<i>dB(A)</i>
Overall Daytime (mainly rush hour)	Leq	42
	Lmax	61
	L90	29
Overall Evening	Leq	36
	Lmax	56
	L90	22
Overall Night Time	Leq	29
	Lmax*	50
	Lmax**	52
	L90	19

* Log Average

** Level Exceed 15 times

So, in summary, we have:-

- 07:00 to 23:00 daytime levels somewhere between the (mainly) rush hour level of 42 dB LAeq and the evening level of 36 dB LAeq. 40 dB LAeq would be a reasonable estimate. This is 5 dB above the MCC daytime design criterion but would be considered “reasonable” with regards to BS 8233.
- 23:00 to 07:00 Night time levels of 29 dB LAeq and 52 dB LAmax. The LAeq level is within the MCC daytime design criterion and would be considered “desirable” with regards to BS 8233. The LAmax figure is 7 dB above the MCC design criterion.

Discussion

All results are a little better than expected, but it remains a concern that the Officer’s comments seemed to suggest that only their design criteria would be considered. It was always acknowledged that these criteria were unlikely to be met and it was our understanding that Officers were willing to take a pragmatic approach with respect to actual harm being done.

The discussions in our report of 3rd October 2023 on the Building Regs part O, are reproduced below in the light of slightly better than expected noise measurements. We also discuss the MCC “*Planning and Noise – Technical Guidance*” document where the criteria come from in the first place.

Building Regulations Part O

A copy of the relevant section is as follows:-

Noise

- 3.2 In locations where external noise may be an issue (for example, where the local planning authority considered external noise to be an issue at the planning stage), the overheating mitigation strategy should take account of the likelihood that windows will be closed during sleeping hours (11pm to 7am).
- 3.3 Windows are likely to be closed during sleeping hours if noise within bedrooms exceeds the following limits.
- a. 40dB $L_{Aeq,T}$, averaged over 8 hours (between 11pm and 7am).
 - b. 55dB L_{AFmax} , more than 10 times a night (between 11pm and 7am).
- 3.4 Where in-situ noise measurements are used as evidence that these limits are not exceeded, measurements should be taken in accordance with the Association of Noise Consultants' *Measurement of Sound Levels in Buildings* with the overheating mitigation strategy in use.
- NOTE:** Guidance on reducing the passage of external noise into buildings can be found in the *National Model Design Code: Part 2 – Guidance Notes* (MHCLG, 2021) and the Association of Noise Consultants' *Acoustics, Ventilation and Overheating: Residential Design Guide* (2020).

This is a ventilation design guide, not a noise design guide per se, but there is no reason why the figures given cannot be used for contextual consideration of the internal levels.

3.3 a. should give officers reasonable comfort that conditions can be considered adequate in terms of the dB L_{Aeq} measure. This is a night time criterion but even the daytime level is no higher and, as stated above, meets BS 8233 “reasonable” conditions.

3.3 b. Should also give officers reasonable comfort in terms of the L_{Amax} measure as they are within the levels specified.¹

MCC “Planning and Noise – Technical Guidance”

Section 3.6.1.1 deals with criteria for internal and garden levels for residential developments and these are what have been referred to as the MCC criteria. However, there is subtle difference between what the document describes as a “*high design specification*” and a criterion which needs to be proven. This point is not an attempt to dispute MCC policy or to split hairs, but the subtlety of the distinction is important and should give officers comfort in considering the actual standards and harm being done.

The design standards are at the more stringent end of criteria suggested by BS 8233 and WHO. The document justifies the stringent end of the criteria by stating that the acoustic performance of is often less in practice than specified by manufacturers/suppliers, which is reasonable enough. They also state that glazing acoustic performance does not usually take vents into account, which again is true.

However, the document states, “*A high design specification introduces a 'safety margin' should building elements not perform as well as expected ('on-site' performance)*”. We would suggest that it is clearly implicit that actual levels may be more than these design standards in practice.

¹ Note that the MCC criterion is expressed in terms of the L_{Amax} level exceeded 15 times a night, whereas Part O expresses it in terms of the level exceeded 10 times a night. The measurements here show the latter 1 dB higher, but still within the specified levels.

It is emphasised again, we are not suggesting that officers ignore their own policies or that they should risk setting undesirable precedents. We make these points simply to encourage Officers to reconsider the actual impact in what is a difficult situation with no easy solution.

We understand that there have been no objections to the noise environment from residents.

I hope this covers everything but please call me with any queries.

Yours sincerely

A handwritten signature in blue ink, appearing to read 'A Raymond', with a long, sweeping flourish extending from the end.

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Appendix 1

Survey Details

The measurements were carried out by Mark Pimlett of ADC Acoustics.

Measurements were carried out on from shortly before 16:00 to shortly before 17:30 on 16th October 2023.

Instrumentation used was a Rion NL-52 Class I sound level meter which holds a current calibration certificate and which was field-calibrated as necessary with no drift noted. The meter was set up to measure continuous 5 minute samples in terms of dB L_{eq} , dB L_{max} and dB L_{90} in overall A-weighted terms, and in octave bands across the frequency range.

The main measurement position was in the living room of apartment 7 about 1.5m from the window. A similar position was also taken up in the bedroom for a short period. The microphone was 1.3 m above floor.

We have no reason to believe that the conditions we found on the survey were anything other than representative of normal conditions. As the measurements were internal, the weather was not crucial but, for the record, there was no rain and roads were dry, and there was negligible wind.

There was audible noise from within the building such as footfall, voices and some audible AV. Also the fridge was running and could not be turned off.

Appendix 2

Measurements and Calculations in Full

Apartment 7

Living Room, Window Open	Index	dB(A)	63	125	250	500	1k	2k	4k	8k
15:50	Leq	44	51	42	47	40	40	35	27	17
	Lmax	62	64	60	67	59	54	53	52	45
	L90	29	46	31	31	24	25	19	12	13
15:55	Leq	42	47	34	36	35	40	34	21	17
	Lmax	53	58	44	46	44	50	44	40	45
	L90	31	45	30	30	26	28	23	12	13
16:00	Leq	42	47	36	37	35	40	34	21	17
	Lmax	53	59	53	45	45	51	43	32	45
	L90	32	45	32	31	27	28	24	12	13
16:05	Leq	40	45	33	34	34	38	32	21	17
	Lmax	52	57	43	45	44	48	43	37	45
	L90	29	39	28	28	25	26	20	12	13
16:10	Leq	44	47	39	39	38	42	36	24	17
	Lmax	57	62	57	57	55	53	48	40	45
	L90	30	40	29	29	26	27	22	12	13
16:15	Leq	42	49	41	37	35	40	34	22	17
	Lmax	54	68	56	50	45	52	45	36	45
	L90	30	43	29	30	25	27	21	12	13
16:20	Leq	42	49	36	36	35	40	34	22	17
	Lmax	63	68	57	55	56	61	53	41	45
	L90	30	43	29	29	26	27	21	12	13

Living Room, Window Closed	Index	dB(A)	63	125	250	500	1k	2k	4k	8k
16:30	Leq	30	44	30	31	24	27	18	15	17
	Lmax	47	61	49	46	40	37	35	32	45
	L90	22	36	22	23	16	16	10	12	13
16:35	Leq	29	42	34	32	23	25	14	12	17
	Lmax	46	57	53	45	33	36	23	20	45
	L90	22	35	24	25	18	16	11	12	13
16:40	Leq	31	45	35	33	25	27	16	12	17
	Lmax	52	60	56	53	47	49	31	24	45
	L90	21	33	22	23	16	16	10	12	13
16:45	Leq	30	40	27	30	23	27	16	12	17
	Lmax	46	55	36	46	33	37	29	21	45
	L90	22	33	22	23	16	16	11	12	13
16:50	Leq	29	41	28	30	23	27	16	12	17
	Lmax	46	54	44	45	33	37	26	23	45
	L90	22	34	21	23	16	16	11	12	13
16:55	Leq	32	46	34	32	26	29	20	17	17
	Lmax	48	60	56	47	38	37	34	39	45
	L90	23	37	24	24	18	18	11	12	13
17:00	Leq	29	45	33	30	25	24	18	16	17
	Lmax	45	57	53	41	34	32	22	22	45
	L90	26	44	27	25	22	21	17	12	13

Bedroom, Window Open	Index	dB(A)	63	125	250	500	1k	2k	4k	8k
17:10	Leq	43	45	38	37	38	41	35	26	17
	Lmax	54	60	48	47	48	52	44	40	45
	L90	31	39	32	30	28	27	20	12	13
17:15	Leq	42	45	38	36	36	39	33	27	17
	Lmax	55	62	52	46	49	52	44	46	45
	L90	28	36	29	26	24	25	20	12	13
17:20	Leq	46	49	43	42	41	43	39	30	17
	Lmax	67	63	67	66	63	61	62	51	45
	L90	34	42	35	32	32	31	26	12	13
17:25	Leq	51	48	43	47	51	46	39	36	17
	Lmax	70	66	59	64	72	64	56	55	45
	L90	36	40	34	31	35	32	26	12	13

Overall Levels	Index	dB(A)	63	125	250	500	1k	2k	4k	8k
Living Room, Window Open	Leq	43	48	39	40	37	40	34	23	17
	Lmax	59	64	56	59	54	55	49	44	45
	L90	30	44	30	30	26	27	22	12	13
Living Room, Window Closed	Leq	30	44	32	31	24	27	17	14	17
	Lmax	48	58	52	48	40	42	30	32	45
	L90	23	38	24	24	18	17	12	12	13
Bedroom Window Open	Leq	40	47	36	38	34	37	31	21	17
	Lmax	56	62	55	56	51	52	46	42	45
	L90	28	42	28	28	23	24	19	12	13

Basement Survey

Time Period	Index	dB(A)	63	125	250	500	1k	2k	4k	8k
15:50 to 16:25	Leq	61	63	58	58	57	59	53	43	35
	Lmax	74	79	75	70	69	71	67	59	57
	L90	49	52	49	48	45	45	39	30	17
16:30 to 17:05	Leq	62	65	62	59	58	59	53	44	34
	Lmax	81	87	83	75	77	78	73	62	55
	L90	48	52	48	47	45	45	39	29	16
17:10 to 17:20	Leq	62	62	58	58	57	60	53	42	31
	Lmax	75	77	72	70	71	73	66	58	51
	L90	48	53	48	47	45	44	38	28	15

Time Period	Index	dB(A)	63	125	250	500	1k	2k	4k	8k
Overall Daytime (mainly rush hour)	Leq	61	62	59	57	56	58	52	42	33
	Lmax	77	82	78	73	72	74	68	61	56
	L90	47	51	47	46	44	43	37	28	16
Overall Evening	Leq	55	56	51	51	50	53	46	36	26
	Lmax	72	75	70	67	67	70	63	55	49
	L90	40	46	41	39	36	37	29	19	14
Overall Night Time	Leq	51	56	49	49	46	49	42	34	26
	Lmax*	69	76	68	68	64	66	60	54	50
	Lmax**	72	75	68	68	67	69	63	53	47
	L90	39	48	41	40	35	35	29	20	14

* Log Average

** Level Exceed 15 times

Apartment 7

calculated Levels, Windows Open	Index	dB(A)	63	125	250	500	1k	2k	4k	8k
Overall Daytime (mainly rush hour)	Leq	42	48	39	40	36	39	34	23	15
	Lmax	61	67	58	62	57	57	50	46	44
	L90	29	42	28	28	24	25	20	10	12
Overall Evening	Leq	36	41	31	33	30	34	28	16	8
	Lmax	56	60	51	56	51	54	45	41	37
	L90	22	38	22	21	16	19	12	1	10
Overall Night Time	Leq	29	41	28	28	23	26	20	12	12
	Lmax*	50	61	50	55	44	46	41	37	44
	Lmax**	52	60	51	54	47	48	44	37	40
	L90	19	37	20	21	14	15	10	4	11

* Log Average

** Level Exceed 15 times