

SANDY BROWN

Consultants in Acoustics, Noise & Vibration

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Unattended internal ambient noise measurement results

This document details the measurement method and results from the internal unattended noise monitoring carried out by Sandy Brown between 17 March 2023 and 20 March 2023. These measurements have been carried out following the replacement facade works to assess the facade performance and noise ingress levels against the criteria set by Manchester City Council (MCC).

Introduction

The purpose of the unattended noise monitoring was to determine the levels of environmental noise ingress via the recently completed facade replacement works. A visual inspection of the facade elements was carried out in the room where the equipment was installed.

The measurement results have been used to carry out a comparison of internal noise levels from environmental noise ingress against the Manchester City Council criteria.

The measured levels were in line with the MCC criterion.

Measurement location

Unattended noise monitoring equipment was installed in the living room of apartment 302. This apartment overlooks Ellesmere Street to the south and is therefore located on the noisiest facade of the development. The facade replacement works had recently been completed for apartment 302 and the cladding including glazed doors to the balcony.

Measurement method and room conditions

Building services were switched off for the duration of the measurement period. The room where the measurement equipment was installed was unfurnished. The microphone was positioned centrally in the living room on a tripod, at least 1 m from any walls and approximately 1.2 m from the floor.

The dominant noise sources observed at the site during the survey were from road traffic on Ellesmere Street and construction noise at the facade of the building. Periods of construction have been excluded from the measurement results.

Measurement results

The noise survey was carried out between 14:10 on 17 March 2023 and 08:40 on 20 March 2023. Construction work on other facades within the development took place between 14:10 and 18:00 on 17 March and between 07:00 and 08:40 on 20 March. These periods have been excluded from the measurement results as they have not been deemed to be representative of typical environmental noise.

A graph showing the results of the unattended measurements is provided at the end of this memo.

Day and night-time ambient noise levels measured during the unattended survey are presented in Table 1.

Table 1 Ambient noise levels measured during the unattended survey

Date	Daytime (07:00 – 23:00)	Night (23:00 – 07:00)
	$L_{Aeq,16h}$ (dB)	$L_{Aeq,8h}$ (dB)
Friday 17 March 2023	-	31
Saturday 18 March 2023	32	30
Sunday 19 March 2023	31	30
Monday 20 March 2023	-	-
Average	32	30

The maximum $L_{AFmax,5m}$ (dB) values exceeded 10 times during the night-time period (23:00 to 07:00 hrs) were:

- L_{AFmax} 44 dB on Friday 17 March
- L_{AFmax} 43 dB on Saturday 18 March
- L_{AFmax} 42 dB on Sunday 19 March.

Planning condition

Part b of the planning condition received from MCC relating to acoustics for the cladding replacement works is provided below:

"When the development reaches practical completion a verification report shall be submitted to an approved in writing by the City Council as local planning authority, which is required to validate that the work undertaken conforms to the recommendations and requirements approved as part of part (a) of this planning

condition. The verification report shall include post completion testing to confirm the noise criteria has been met. The verification report shall be submitted to the City Council as local planning authority no later than 1 calendar month following the practical completion of the development.

If there are instances of non-conformity during the verification stage, these shall be detailed along with mitigation measures required to ensure compliance with the relevant noise criteria. Any subsequent further mitigation measures shall be fully implemented in accordance with a timescale to be agreed with the City Council as Local Planning Authority and thereafter fully implemented, retained and maintained in situ."

Assessment of measured noise ingress levels

Criteria

Guidance on acceptable internal noise levels in residential dwellings is given in Manchester City Council's Planning and Noise Technical Guidance. This references BS 8233:2014 *Sound insulation and noise reduction for buildings*.

Manchester City Council's guidance includes the following internal noise limits for residential properties:

- Bedrooms (night time - 23.00 - 07.00) 30 dB L_{Aeq} (individual noise events should not normally exceed 45 dB $L_{Amax,F}$ by more than 15 times)
- Living Rooms (daytime - 07.00 - 23.00) 35 dB L_{Aeq} .

These internal levels are based on BS8233 criteria which uses annual average data. It is normal to exclude occasional events, such as fireworks night or New Year's Eve.

Comparison to MCC criteria

The cladding details reviewed and inspected on site appeared to be in line with our initial assessment for part a of the planning condition (as per Sandy Brown document 21036-M001-B *Cladding sound insulation review* dated 24 March 2021).

The measured noise ingress levels in the apartment were equivalent or lower when compared to the benchmark sample measurement results for living rooms which were undertaken prior to the facade replacement works (as per Sandy Brown document 21036-M003-A *Internal ambient noise level results* dated 15 March 2023). This is an indication that the facade replacement works to the apartment tested provide an equivalent or better sound insulation performance than the original cladding.

The measured levels were in line with the MCC noise ingress criteria (stated above) and are also expected to be worst-case as were in a living room rather than a bedroom (which includes glazed doors to a balcony) and were located on the noisiest facade of the scheme.

Burton Place, Manchester
Results of noise logging survey
17 March 2023 to 20 March 2023

