

Project name	121 Princess Street		
Design note title	Internal Noise Monitoring - Condition 2a		
Document reference	17658-HYD-XX-XX-TN-Y-1001		
Author	Leah Rose Farrar, AMIOA - Graduate Acoustic Engineer		
Revision	R01		
Date	24 June 2022	Approved	✓

1. INTRODUCTION

1.1 Overview

Hydrock have been appointed to provide acoustic engineering services to support the removal of Planning Condition 2A at Princess Street.

This report summarises the following:

- The planning condition set out by the council;
- Internal noise level measurements undertaken at the site; and
- The planning condition removal based upon the closure of the night club; and
- Assesses the internal noise levels to demonstrate that Condition 2A is no longer applicable.

1.2 Site Description

121 Princess Street is a 6-storey building located in central Manchester. Until recently, a nightclub was operating within the ground and basement floors, with residential uses (student) in the remaining floors. The ground floor and basement units have been acquired by the applicant and are no longer operational as a nightclub.

To the north of the site is the B6469 along with commercial and residential buildings. Bordering the site to the east site is Stanlo House which is a 6-storey residential block of flats. To the south of the site is Granby Row and The Garratt public house, along with other commercial properties. To the west of the site is the A34 Princess Street. There is a mixture of residential and commercial properties along Princess Street, including hotels and offices.

2. PLANNING CONDITION

The development is currently subject to planning condition 2a, the wording for which is as follows.

Reworked Condition (2a)

2)(a) Within 4 weeks of the date of this decision, a scheme for acoustically insulating the residential dwellings hereby permitted against any actual or potential sources of noise from any commercial/industrial premises in the vicinity of the development (including in particular entertainment noise from the lawful operation of the nightclub in the basement of the premises and the potential entertainment noise from the permitted use of the currently-vacant ground floor of the premises) shall be submitted to the local planning authority in writing for its written approval. The scheme shall:

(i) provide details of the acoustic insulation already installed in the development,

(ii) demonstrate whether and, if so, how the acoustic insulation installed in the development achieves the following noise criteria in respect of all apartments hereby permitted:

- Bedrooms (night time -23.00 -07.00): 30 dB L (individual noise events shall not exceed 45 dB $L_{Amax,Fby}$ more than 15 times)

- Living Rooms (daytime -07.00 -23.00) 35 dB LAeq

- Gardens, balconies and terraces (daytime) 55 dB LAeq

- in respect of the entertainment noise from the basement and ground floor premises, noise levels in the 63Hz and 125Hz octave centre frequency bands do not exceed 47dB and 41dB, respectively in habitable rooms, measured at 5-minute intervals over both the daytime and night time periods set out above.

(iii) where the existing acoustic insulation does not achieve all of the noise criteria stated above, the scheme must provide details of the further acoustic insulation to be provided or other measures to be taken and shall demonstrate that the further insulation or measures would achieve compliance with each of the noise criteria specified above. The scheme must also specify a timetable for the carrying out of such further measures;

(iv) Where additional works or measures are required, the scheme shall include for the local planning authority's approval details of the sound testing and other steps which will be taken to ascertain whether the works or measures have achieved compliance with the criteria set out in part (a) of this condition and which will form part of the verification report referred to below.

Where further acoustic insulation or other measures are required and set out in the scheme, that further insulation shall be installed and/or those measures shall be taken within the timescale approved by the local planning authority.

Planning condition 2a above makes reference to 'entertainment noise from the basement and ground floor premises' and outlines associated noise level requirements. Given the basement and ground floor are now under the applicant's control, they will no longer operate as a nightclub and therefore will not generate considerable levels of entertainment noise. The Applicant is proposing, alongside this application, to enter into a Section 106 Planning Obligation to prevent the use of the ground floor and basement for these uses; to effectively withdraw the lawfulness of these uses. It is therefore proposed that condition 2a is removed.

3. POLICY AND GUIDANCE

Manchester City Council has adopted 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}
- Gardens and terraces (daytime) 55 dB L_{Aeq}

These criteria have been adopted for the following reasons:

- BS 8233: 2014 recognises these levels as a good standard for resting/sleeping conditions.
- The WHO document 'Guidelines for Community Noise' recommends an internal L_{Aeq} of 30dB for optimal sleep conditions (and no more than 35dB for internal rooms during daytime).
- The performance of acoustic insulation schemes can often be below that specified, according to the quality of installation, materials, noise spectrum and deterioration / wear and tear of building elements. A high design specification introduces a 'safety margin' should building elements not perform as well as expected ('on-site' performance).
- Performance specification for glazing does not usually take into account the detrimental effect of vents on the sound insulation. Even 'acoustic' vents will reduce the performance of the facade insulation, as they will inherently contain a free open area for air exchange.
- There is a general increase in urban noise levels, which can in the future be reasonably accommodated by these standards.
- The standards support the Local Authority corporate objective to prevent ill-health and improve local people's health and well being.

It is important to note here that the adoption of these criteria with respect to transport noise sources is essentially voluntary given that the scheme falls under permitted development rights.

4. MEASURED INTERNAL NOISE LEVELS

4.1 Survey Procedure

Internal noise measurements were carried out on the 2nd March (night-time) 2022 and 4th March (daytime) 2022.

Measurements were taken within approximately 10% of the constructed apartments, and the internal noise levels have been assessed against the criteria set out in BS8233. Based upon this, 11 apartments were chosen to carry out measurements in and these were distributed evenly across each façade.

Monitoring locations and respective facades can be seen in Table 1.

Table 1: Monitoring locations

Floor	Bombay Street Elevation	Princess Street Elevation	Granby Row Elevation
1 st	101	118	
2 nd	201		212
3 rd		321	311
4 th	402	419	509
5 th			
6 th	602	615	

4.2 Measured Noise Levels

The measured ambient noise levels during the daytime and night-time measured noise level during the night-time, within each room, are summarised in Table 2 and Table 3.

Table 2: Daytime internal ambient noise levels

Room Number	Time (hh:mm)	Duration (mm:ss)	Measured Internal Ambient Noise Level L _{Aeq} , dB	Target Internal Ambient Noise Level L _{Aeq} , dB	Compliance note
101	09:30	05:00	31	35	✓
118	09:38	05:00	35	35	✓
201	09:49	05:00	35	35	✓
212	09:56	05:00	28	35	✓
311	10:11	05:00	31	35	✓
321	10:04	05:00	31	35	✓
402	10:25	05:00	35	35	✓
419	10:19	05:00	33	35	✓
509	10:33	05:00	31	35	✓
602	10:41	05:00	27	35	✓
615	10:49	05:00	32	35	✓

Table 3: Night-time internal ambient noise levels

Room Number	Time (hh:mm)	Duration (mm:ss)	Measured Internal Ambient Noise Level L _{Aeq} , dB	Target Internal Ambient Noise Level L _{Aeq} , dB	Compliance note
101	00:02	05:00	30	30	✓
118	00:09	05:00	30	30	✓
201	00:18	05:00	30	30	✓
212	00:25	05:00	26	30	✓
311	22:56	05:00	30	30	✓
321	23:03	05:00	30	30	✓
402	23:12	05:00	31	30	✗
419	23:21	05:00	30	30	✓
509	23:31	05:00	30	30	✓
602	23:54	05:00	28	30	✓
615	23:46	05:00	31	30	✗

Note: Room 402 and 615 have marginally exceeded the target conditions by 1dB during the night-time hours. Please note that the time of the measurement (23:00-00:00) is seen as the loudest period of night-time. The measurement methodology had to be shortened as the rooms were occupied. Given the minor nature of the exceedance during the loudest part of the night, it is anticipated that the L_{Aeq,8-hours} would be below 30 dB.

5. ASSESSMENT OF INTERNAL NOISE LEVELS

The recommended internal noise level within living rooms and bedrooms during the daytime is 35dB L_{Aeq,16hour}, and the recommended level within bedrooms during the night-time is 30dB L_{Aeq,8hour} as set out by BS8233.

Measurements were carried out across all 6 floors of the building and all of the locations were carried out in studio apartments. The results in Table 2 and Table 3 show that the daytime and night-time L_{Aeq,T} noise levels are below the respective guideline levels in each of the apartments.

The results of the assessment have shown the daytime and night-time noise levels within noise sensitive rooms satisfy national guidance. Therefore, the installed scheme of insulation is sufficient in mitigating internal noise ingress, therefore with the removal of the nightclub use and the S106 obligation to prevent its reintroduction, there is no need for further mitigation as presently prescribed under condition 2a.

6. CONCLUSION

Hydrock has carried a noise survey assessment at 121 Princess Street, based upon previously measured noise levels, to validate the scheme of insulation and to show the noise levels achieve their criteria.

Measurements were taken within 10% of the constructed apartments, and the internal noise levels have been assessed against the criteria set out in BS8233.

The results of the assessment have shown the daytime and night-time noise levels within noise sensitive rooms satisfy national guidance. Therefore, the installed scheme of insulation is sufficient in mitigating internal noise ingress, and with the removal (and prevention by planning obligation) of the nightclub use, there is no need further mitigation and hence condition 2a becomes unnecessary.