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Hello Oriental, Circle Square Pavilion

Noise egress assessment

Sandy Brown has been commissioned by Bowker Sadler Architecture to provide an acoustic assessment in relation to the fit-out of Unit 3b for Hello Oriental restaurant within the Circle Square Pavilion, Manchester.

This memo presents an assessment of noise egress from amplified music and patrons at Hello Oriental following a request from Manchester City Council (MCC).

Summary

In summary:

- Maximum permissible noise limits for amplified music have been set where the DJ set is proposed at the basement of Unit 3b. These limits will be suitable in controlling noise levels at the nearest receptors in accordance with the requirements of Manchester City Council.
- Noise egress from patrons in the external terrace is expected to be less than the background noise levels at the nearest noise sensitive receptors at the Phase 1B apartments.

When considering the above, the likelihood of complaints from neighbouring residents is expected to be low.

Introduction

Unit 3b of Circle Square Pavilion is to be fit-out for Hello Oriental restaurant (Planning Class E(b)) and is shown in relation to the wider site in red in Figure 1. The nearest residential premises are shown in blue, with the closest being the Phase 1B apartments overlooking the pavilion.

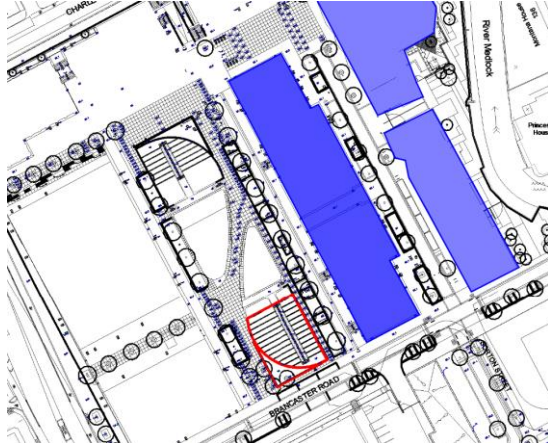


Figure 1 Location of nearby noise sensitive receptors

The Local Authority, Manchester City Council (MCC) have recently requested that an assessment be undertaken as part of a planning assessment to account for noise egress from:

- Patrons in the external seating area
- A DJ set that is to operate from within the basement of Unit 3b.

The outside terrace is located adjacent to the curved entrance, as shown in Figure 2 and is mostly screened from the lower residential units to the east. Up to 38 people are able to be seated outside.

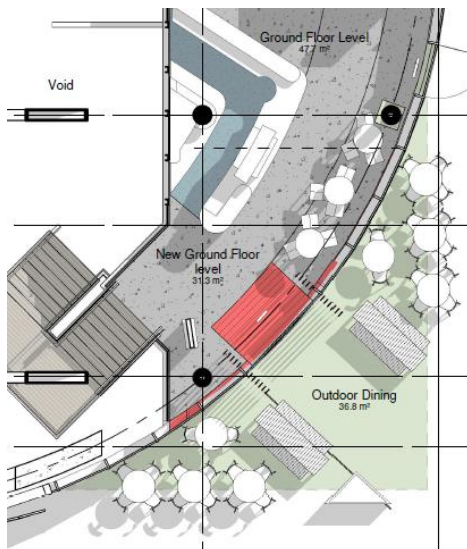


Figure 2 Layout of ground floor external terrace

No amplified music is to be played on the outside terrace.

Food and drink are to be served 7 days a week from 08:00 to 00:00, with drinks services and music 'winding down' after 23:00.

A DJ is proposed at the lowest basement level on Fridays and Saturdays between 20:00 and 23:00.

Amplified noise egress

Amplified music criteria

MCC *Planning and Noise Technical Guidance* document dated December 2015 stipulates the following in relation to amplified music associated with a new development:

'Entertainment noise (L_{Aeq}) should be controlled to 10 dB below the background noise level (L_{A90}) without the entertainment noise present, in each octave band at the nearest noise sensitive location.'

This criterion is applicable to nearby residential receptors only. To safeguard against any future residential developments proposed as part of the Circle Square Masterplan, the assessment has been carried out to the adjacent Phase 1B apartments (Planning Class C3) as this is the worst affected receptor in terms of location. If noise levels are suitably controlled here, they will also be suitably controlled at any nearby residential use in the area.

The background measurements at the facade of Phase 1B as taken from the EIA, are presented in Table 1.

Table 1 Background sound pressure levels at nearby sensitive receptors (from EIA)

Location/period	Sound Pressure Level, L_{90} (dB)							dB(A)
	Octave-band centre frequency (Hz)							
	63	125	250	500	1000	2000	4000	
Phase 1B residence (07:00 to 23:00)	63	58	55	51	51	44	33	55
Phase 1B residence (23:00 to 07:00)	56	52	46	44	42	35	29	46

Based on the requirements of MCC, amplified music limits at the facade of the Phase 1B apartments are provided in Table 2.

Table 2 Amplified music sound pressure limits at nearby sensitive receptors (from EIA)

Location/period	Sound Pressure Level, L_{eq} (dB)							
	Octave-band centre frequency (Hz)							
	63	125	250	500	1000	2000	4000	dB(A)
Phase 1B residence (07:00 to 23:00)	53	48	45	41	41	34	23	45
Phase 1B residence (23:00 to 07:00)	46	42	36	34	32	25	19	36

Assessment

An assessment considering the limits at the nearest noise sensitive receptors in Table 2, break-out via the building cladding, attenuation with distance between Unit 3b and the nearest receptors has been undertaken.

To achieve the criteria in Table 2, amplified sound within the Unit 3b basement should not exceed the maximum permissible noise levels provided in Table 3.

Table 3 Maximum permissible levels from amplified sound within the Unit 3b basement (L_{eq} dB)

Time period	Octave-band centre frequency (Hz)							dB(A)
	63	125	250	500	1000	2000	4000	
Daytime 0700 to 2300	80	80	77	79	88	79	75	89
Night 2300 to 0700	73	74	68	72	79	70	71	80

These limits mean DJ sets would be suitable only for typical bar/restaurant involving background amplified music levels until 23:00 with the currently proposed building fabric. A calibrated electronic noise limiting device is recommended to implement the limits in Table 3.

Should there be aspirations for louder events (eg DJ sets operating at typical nightclub level / live music), consideration would need to be given to enhanced building cladding and lobbied entrance doors.

Patron noise egress

This section assesses noise from Patrons in the external seating area in Figure 2.

Criteria

Manchester City Council do not have any specific criteria in relation to noise due to the general hubbub generated by patrons in external areas.

Provided noise levels (L_{eq}) due to patrons are lower than the existing background noise levels at the Phase 1B residential apartments, the likelihood of complaints is considered low.

The background noise levels used for the basis of the assessment are presented in Table 1.

Patron noise egress assumptions

This assessment is based on:

- 50% of the 38 people speaking in the external seating area with raised voices at any given time, while assuming the remainder are speaking with 'normal' voices.
- Speech levels are taken from a research publication *Vocal effort levels in anechoic conditions*, 2011 and are applicable to a broad range of activities and commonly used when assessing vocal noise emissions from groups of people. In the absence of any

specific guidance on speech levels from MCC in relation to external terrace / bar area noise break-out, these have been used as the basis for the assessment. The relevant sound pressure spectrum for raised male speech is provided in Table 4 as this is worst case.

- The noise levels presented in Table 4 are stated to be the sound pressure spectrum of a person talking with a raised voice at 1 m from a talker's mouth in the free field before applying distance corrections to the nearest noise sensitive receptors.
- Frequencies of 63 Hz are more commonly associated with sources such as amplified music that contain significant bass and will have a negligible impact for sources such as speech.
- Maximum noise levels are expected to be predominantly attributed to raised voices, and consequently are reflected in the assessment. Noise associated with other sources will be minimised through careful operational management.
- The external seating area is assumed to open during the daytime (07:00-23:00) only.

Table 4 Raised vocal effort level source spectrum used for the basis of the assessment

	Sound pressure level at 1 m, L_{eq} (dB)						
	Octave-band centre frequency (Hz)						
	125	250	500	1000	2000	4000	dB(A)
Raised vocal effort level	57	62	65	62	57	52	67

Assessment

The nearest receptors are a distance of approximately 29 m from the external seating area.

Table 5 presents the predicted sound pressure levels at the receptors due to patron hubbub after applying corrections for the number of patrons, attenuation with distance between the external seating area and Phase 1B apartments and acoustic screening.

Table 5 Expected noise levels at 1 m from the nearest receptors due to patrons on the L1 terrace

Location	Sound pressure level at 1 m, L_{eq} (dB)						
	Octave-band centre frequency (Hz)						
	125	250	500	1000	2000	4000	dB(A)
Phase 1B apartments	32	41	44	39	30	22	44

The results of this assessment indicate that the resulting noise levels at the nearest noise sensitive receptors would be below the background noise levels at the residential receptors for daytime periods, presented in Table 1.

This indicates that noise from patrons in the external seating is not expected to be significant and is not expected to give rise to complaints from residents inside the nearest residential receptors.

In addition, noise from people talking outside the pavilion would be less audible than people within the public square area, which is less screened from the residences.

The overall likelihood of complaints is therefore expected to be low.