

MPF/PR0534/L16

7 January 2022

James Sidlow
Renaker Build Limited
NQ Building
47 Bengal Street
Ancoats
Manchester
M4 6BB

Flint Glass Works
64 Jersey Street
Manchester M4 6JW

0161 605 0905 
info@fisheracoustics.co.uk 
www.fisheracoustics.co.uk 

Dear James

DEANSGATE SQUARE, COMMERCIAL UNIT 2B, ENVIRONMENTAL NOISE ASSESSMENT

We write in relation to condition 24 of the planning approval for Deansgate Square and in particular in relation to commercial unit 2B of the Development.

INTRODUCTION

The planning approval for Deansgate Square, Manchester includes a condition which requires that a noise study is conducted in relation to activity noise egress from the proposed commercial units that are ancillary to the residential accommodation at the Development.

Fisher Acoustics Ltd has been commissioned by Renaker Build Limited to determine the allowable activity noise levels within commercial unit 2B and to advise on compliance with the requirements of the planning approval for the Development.

PLANNING CONDITION

Planning Condition 24 of the Planning Approval for Deansgate Square, Manchester (Planning Application number 111719/FO/2016/C1) states:

24) Before any A3 use hereby approved commences, the premises shall be acoustically insulated and treated to limit the break out of noise in accordance with a noise study of the premises and a scheme of acoustic treatment that has been submitted to and approved in writing by the City Council as local planning authority.

Reason - To safeguard the amenities of the occupiers of the building and occupiers of nearby properties, pursuant to policies SP1 and DM1 of the Core Strategy..

The closest residential properties to commercial unit 2B are the apartments within the residential towers of Deansgate Square and in particular the residential dwellings at Tower D, Deansgate Square.

PROPOSED COMMERCIAL USE

The proposed use for commercial unit 2B is an Italian Restaurant to be operated by Salvi's.

Figures 1 show the location of unit 2B within the context of the Deansgate Square development.



Figure 1: Location of commercial unit 2B

ENVIRONMENTAL NOISE CRITERIA

Noise egress from unit 2B must be controlled to appropriate levels so as to avoid noise nuisance to existing sensitive receptors.

As a sound system for the replay of background music is to be installed within unit 2B, an assessment of potential music noise egress from the commercial unit has been carried out.

'Planning & Noise, Technical Guidance' issued by Manchester City Council in December 2015 gives guidance on the preferred approach to environmental noise assessments. In relation to 'entertainment noise, Section 3.6.1.5.1 of the document states:

- 'When considering the potential impact of a proposal for an entertainment venue, consultants should consider the overall noise level (LAeq) and the 63 Hz and 125 Hz octave band noise levels (Leq). Music noise in the 63 Hz and 125 Hz octave bands, which is often described as "bass noise", is particularly difficult to contain and the impulsive character of this low frequency music noise is particularly disturbing for local residents exposed to it.

A planning application for a new entertainment venue that is structurally detached from other building uses should demonstrate that music noise from the proposal will not be 'audible' in nearby residential properties, assuming that the residential properties in question have their windows open. The criterion here is: Entertainment noise (LAeq) should be controlled to 10dB below the background noise level (LA90) without the entertainment noise present, in each octave band at the nearest noise sensitive location.

A criterion that would achieve a condition of 'inaudible' / 'virtually inaudible' which is applicable for new residential developments that are structurally connected to entertainment venues (or vice versa) would be: 'Music noise levels in the 63Hz and 125Hz octave centre frequency bands (Leq) should be controlled so as not to exceed (in habitable rooms) 47dB and 41dB (Leq), respectively.

This criterion may also be applicable for new residential developments that are structurally separate from an existing entertainment venue'.

The above guidance recommends that the 'LAeq' noise level external to the nearest residential properties due to music noise egress from an entertainment venue is at least 10dB lower than the 'LA90' background noise level external to those properties in each octave band.

The environmental noise study that was conducted as part of the planning submission for Deansgate Square included noise surveys within and around the site. These noise surveys allowed the establishment of the maximum allowable noise levels at residential receptors both within and around the Deansgate Square development due to operational activity noise. The noise and vibration chapter of the Environmental Statement for Deansgate Square identified these allowable noise levels.

The closest residential receptors to unit 2B are the apartments within Tower D of Deansgate Square. Achievement of the applicable noise limits at these apartments would ensure that noise levels at the more distant pre-existing residential properties beyond the Deansgate Square development also maintain residential amenity.

Table 1 identifies the recommended maximum allowable Leq noise levels external to the apartments of Tower D due to cumulative music noise breakout from all commercial units at Deansgate Square.

Period	Sound Pressure Level (dB Leq) @ Octave Band Centre Frequency (Hz)						
	63	125	250	500	1k	2k	4k
07:00 to 23:00	50	41	41	40	42	35	26
23:00 to 07:00	49	40	38	39	41	35	26

Table 1: Maximum recommended external noise levels at apartments due to music noise from all Deansgate Square commercial units

NOISE EGRESS CALCULATIONS

Noise egress calculations have been carried out to determine the expected noise level at the closest residential properties due to noise egress from the commercial units at Deansgate Square, including unit 2B. Calculations of noise egress from a building requires the following information:

1. Dimensions of radiating surfaces (e.g. external wall)
2. Distance of radiating surfaces to sensitive receptor
3. Sound reduction index of radiating surfaces
4. Orientation of radiating surface to sensitive receptor

Unit 2B is provided with mechanical supply and extract ventilation and thus does not rely on opening elements for ventilation. The principal noise radiating surface of unit 2B is an external enclosure that provides an additional area of covered seating. The external enclosure is constructed such that a 200mm gap exists between the top of the vertical enclosure and the structural soffit that extends over the full area of the enclosure.

There are patron access doors within the curtain wall of the unit and doors to the enclosure. The principal determinant of the sound insulation performance of the external envelope will be the glazing and aluminum panels of the enclosure, the access doors and the 200mm gap between the enclosure and the structural soffit.

As no door lobby is proposed to unit 2B, there could be intermittent increases of external noise during the movement of patrons in and out of the unit. Therefore, the assessment has included a worst-case scenario of open doors and open windows to the external enclosure.

The glazing specification to the commercial units, installed as part of the main construction contract for Deansgate Square is as follows:

- 13.5 mm laminate / 20mm cavity/ 11.5mm laminate

The glazing specification to the external enclosure of unit 2B, is as follows:

- 8.4 mm laminated single pane

The expected minimum weighted sound reduction index of the above glazing specifications, the aluminum panels of the external enclosure and the patron access doors when closed are given in Table 2:

Building element	Sound Reduction Index (dB) @ Octave Band Centre Frequency (Hz)						
	63 Hz	125 Hz	250 Hz	500 Hz	1kHz	2kHz	4kHz
Glazing to main unit - 13.5 mm laminate / 20mm cavity/ 11.5mm laminate	25	27	32	39	39	40	48
Glazing to external enclosure - 8.4 mm laminate	21	24	26	31	35	33	40
Aluminium panels of external enclosure	10	15	20	25	30	35	38
Doors	18	20	22	23	23	23	25

Table 2: Expected sound reduction index of commercial unit curtain wall elements

Calculations have been carried out to determine the allowable contribution of all the commercial units at Deansgate Square to the external noise level at the closest residential receptors to unit 2B to ensure that the external noise limits identified in Table 1 are not exceeded when all of the commercial units are operating. The maximum allowable contribution to external noise at these closest receptors from unit 2B has then been determined.

As identified above, the closest residential receptors to unit 2B are the apartments within Tower D of Deansgate Square.

Table 3 identifies the calculated noise levels that could be generated within the external enclosure and main body of unit 2B with all patron doors open, all windows to the east and west elevation of the enclosure fully open and half of the windows to the north elevation of the enclosure fully open without exceeding the daytime and night time external noise limits given in Table 1.

Location	Sound Pressure Level (dB Leq) @ Octave Band Centre Frequency (Hz)						
	63	125	250	500	1k	2k	4k
External enclosure of commercial unit 2B Daytime (0700 hrs to 2300 hrs)	73	65	65	64	66	59	50
External enclosure of commercial unit 2B Night time (2300 hrs to 0700 hrs)	72	64	62	63	65	59	50

Table 3: Maximum allowable internal activity noise levels – daytime and night time, doors open

The noise levels detailed in Table 3 would allow a restaurant with low-level background music replay to be accommodated.

Given the proposed operation of Unit 2B as a restaurant with background music replay, compliance with the noise limits given in Table 3 is fully expected.

Calculations have also been carried out to determine the allowable internal noise levels to achieve compliance with the recommended maximum external noise levels assuming that the external doors to the commercial unit and the doors and windows to the external enclosure are closed.

Table 4 identifies the calculated noise levels that could be generated in unit 2B with doors closed without exceeding the daytime and night time external noise limits given in Table 1.

Location	Sound Pressure Level (dB Leq) @ Octave Band Centre Frequency (Hz)						
	63	125	250	500	1k	2k	4k
Commercial Unit 2B, Daytime	78	73	75	76	79	72	64
Commercial Unit 2B, Night time	77	72	72	75	78	72	64

Table 4: Maximum allowable internal activity noise levels – Daytime and night time, Doors closed

Given the proposed operation of Unit 2B as a restaurant with background music replay, compliance with the noise limits given in Table 4 is fully expected.

CONCLUSION

The maximum allowable noise levels in commercial unit 2B have been calculated such that the identified external noise limits at the closest residential receptors are not exceeded.

The calculated allowable noise levels within unit 2B are fully commensurate with the operation of the unit as a restaurant with background music replay.

Compliance with the requirements of condition 24 of the planning approval is therefore expected.

If there are any aspects that you would like to discuss, please do not hesitate to contact the undersigned.

Yours sincerely

A handwritten signature in blue ink, appearing to read 'Matt Fisher', is written over a light blue rectangular background.

MATT FISHER BEng(Hons) CEng MIOA
For and on behalf of Fisher Acoustics Limited