

Velux Window Noise Test Report

Seven Bro7hers, 39 Blossom Street, Manchester M4 5AF

Test Date: 18th March 2021 (revised 07/10/21)
Noise Assessment for planning originally dated 7th July 2016

1. Introduction

Azymuth Acoustics UK undertook a set of noise measurements in Seven Bro7hers 39 Blossom Street Manchester on 18th March 2021 to assess the break-out noise from the rear facing Velux windows. The testing is required by Manchester City Council in order to demonstrate compliance with planning conditions and to address a complaint regarding noise from the venue.

The noise measurements were carried out with the aim of comparing noise control requirements and predictions detailed in Azymuth Acoustics noise impact assessment report A1714 (dated 08/07/16) which contained recommendations for noise limits applicable to noise break-out from the premises from internal activity and/or amplified music or similar events.

2. Manchester City Council Comments & Requirements

The GD03 guidance document provides developers with information related to Manchester City Council policy on discharging planning conditions imposed by the City Wide Environmental and Public Protection Team. The document has specific sections covering policy on noise from entertainment venues, fixed plant and equipment etc. The document states, 'A planning application for an entertainment venue should demonstrate that music noise from the proposal will not be audible inside residential properties nearby assuming that the residential properties in question have their windows open. The target noise criteria here should be 10dB (LAeq) below the existing LA90 in each octave band.'

In relation to proposed entertainment venues structurally connected to residential developments the document provides the following criteria: 'Noise levels in the 63Hz and 125Hz octave frequency bands should be controlled so as not to exceed (in habitable rooms) 47dB and 41dB respectively'.

3. Noise Breakout Assessment

Figure 1 shows the sound insulation results of the Velux windows. Pink noise was played within the venue at approximately 102 dB(A) incident on the windows. External noise measurements were taken with the windows closed at 1 m distance.

Frequency f Hz	D 1/3 octave dB
50	15.8 *
63	24.1
80	25.9
100	26.2
125	23.7
160	21.3
200	25.5
250	29.2
315	30.2
400	31.7
500	32.4
630	33.4
800	36.3
1000	37.2
1250	36.7
1600	39.3
2000	41.4
2500	42.3
3150	41.6
4000	45.6
5000	47.4

* 1.3 dB correction applied,
value at the limit of measurement

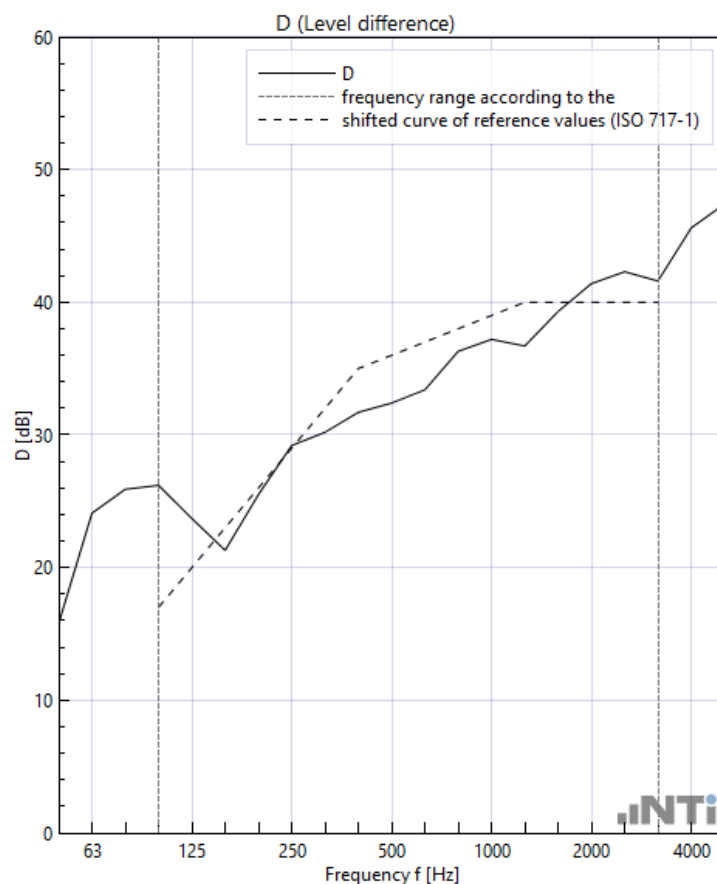


Figure 1: Measurement results of Velux window sound reductions

The windows achieved a Sound reduction rating of 36 (-3) $D_w(c_{tr})$ dB.

3.1 Noise Break-out calculations

The nearest habitable rooms have been defined as bedroom windows on the rear façades of 39 Blossom Street. The facades at the rear of Loom Street have been determined to be residential apartments and this location is at nominally the same distance from the Velux windows as the apartment immediately above the Seven Bro7hers premises (ie apartments at 39 Blossom Street).

The following table provides sound insulation test results for the rear elevation, for the nearest habitable residential receptor at 39 Blossom Street through the pitched roof and Velux windows.

Parameter	Octave Band Centre Frequency (Hz)							Total dBA
	63	125	250	500	1k	2k	4k	
Inside Seven Bro7hers SPL from Quiz Activity	65	74	78	81	77	71	66	82
Sound insulation performance of Velux windows and rear façade	25	24	29	33	37	42	44	D _w 36
Break-out SPL @1m from facade	40	50	49	48	40	29	22	47
Calculated receptor external incident level (habitable room @approx. 2.5m)	32	42	41	40	32	21	14	39
Noise limit based on BSL -10dB (MCC guidance for mixed use schemes)	41	41	40	33	30	26	18	35
	-9	+1	+1	+7	+2	-5	-4	+4
Compliant?	No	No	No	No	No	No	No	No
MCC bass noise limit in 63-125Hz bands	47	41						
Compliant	Yes	Yes						

Table 3: Break-out through rear elevation / Velux windows (Quiz Night)

It can be seen that the predicted entertainment noise break-out and rear is deemed to be non-compliant with the MCC planning requirements. An additional 4 dB reduction is required by the Velux windows to achieve MCC planning requirements. This will be achieved by replacing the current Velux windows with Acoustic Velux windows with a R_w rating of 41 dB.

4. Conclusions / Recommendations

It is recommended that the Velux windows are replaced with acoustic Velux windows of R_w rating of 41 dB or better. Noise break-out from the premises during busy periods (i.e the measured Quiz Night) will be controlled by the acoustic Velux windows.

These findings are based on live music being restricted to the period up to 22:00hrs and with short term noise levels up to 90dB L_{Aeq, 30seconds} (and more generally 82 dB L_{Aeq, 15mins}).