

Maitland Park, Camden

# Music noise levels (Conditions 11, 37 & 38)

Report 17/0485/R3

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## Bouygues Construction

Becket House  
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London  
SE1 7EU

Revision	Description	Date	Prepared	Approved
0	First issue	8 June 2023	Thomas Goose	Matthew White

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Attachments

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## Music noise levels (Conditions 11, 37 & 38)

### 1 Introduction

- 1.1 This report details measurements of the sound insulation performance of the separating floor between the TRA hall and first-floor flats above, at Mary Prince House, Camden with reference to Planning Conditions imposed by London Borough of Camden in planning permission reference 2014/5840/P.

### 2 Planning Conditions

- 2.1 Planning permission (application ref 2014/5840/P) for the development was granted subject to conditions. This report and associated works relate to Conditions 11, 37 & 38, which are reproduced below:

#### Condition 11 – Music noise levels

*No music shall be played in the community hall in such a way as to exceed levels of 47dB Leq,1min at 63Hz and 41dB Leq,1min at 125Hz inside any habitable room of any residential dwelling (including those forming part of the development itself). Dwellings forming part of the scheme should be considered with windows closed and adequate background ventilation provided.*

*Reason: To safeguard the amenities of the adjoining premises and the area generally in accordance with the requirements of policies A1 and A4 of the London Borough of Camden Local Plan 2017.*

#### Condition 37 – Music from TRA Hall

*Prior to the first use of the TRA hall, an acoustic report shall be submitted to and approved by the Local Planning Authority in writing. The acoustic report shall provide sound tests to demonstrate music from the TRA Hall complies with condition 11.*

*Reason: To safeguard the amenities of the adjoining premises and the area generally in accordance with the requirements of policies A1 and A4 of the London Borough of Camden Local Plan 2017.*

#### Condition 38 – Sound limiter

*A suitable sound limiting device shall be installed in the TRA Hall. The limiting device shall be set to ensure the noise limits specified by condition 11 are not exceeded. Prior to the first use of the TRA hall, a certificate of compliance shall be submitted to and approved by the Local Planning Authority in writing. The limiter shall be protected in such a manner so as to prevent tampering by unauthorised persons.*



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*Reason: To safeguard the amenities of the adjoining premises and the area generally in accordance with the requirements of policies A1 and A4 of the London Borough of Camden Local Plan 2017.*

### 3 Condition requirements

- 3.1 This report is intended to inform the specification of a sound limiting device such that can be installed by others and commissioned in order to discharge Condition 38.
- 3.2 In conjunction with the sound limiter required to discharge Condition 38, the sound insulation results of this report can be used to discharge Condition 37.
- 3.3 When both Conditions 38 and 37 are discharged, Condition 11 can be discharged by default.

### 4 Instrumentation and Methodology

- 4.1 Tests were undertaken to determine the Weighted Level Difference ( $D_w$ ) of the relevant sections of party wall. The following methodology and instrumentation were adopted:
- 4.2 A stereo pink noise source was connected to a mixing desk conveying the signal to 2 subwoofers and a single cabinet loudspeaker in the source room.
- 4.3 The sound level analyser was used to record the average  $L_{eq}$  noise level generated in the source room using a 'sweep' measurement. Measurements were made in one-third octave bands over the frequency range 50-5,000 Hz for 30 seconds at each position.
- 4.4 In the receiver room, resultant  $L_{eq}$  noise levels were also recorded using a 30-second 'sweep' measurement, in the same one-third octave bands.
- 4.5 In the receiver room, with the sound source turned off background  $L_{eq}$  noise levels were also recorded at six 'fixed' (static) measurement positions using a 30-second 'sweep' measurement, in the same one-third octave bands.
- 4.6 The loudspeakers were then moved and steps 4.3 –4.5 were repeated.
- 4.7 In each one-third octave band, the level difference ( $D$ ) was calculated for both sets of speaker positions by subtracting the average receiver room sound pressure level (corrected for background noise where required) from the source room average sound pressure level for each loudspeaker position.
- 4.8 The results have been corrected for the background noise as appropriate in accordance with ISO 140-4 requirements; whereby if the difference is 6-10 dB, a logarithmic subtraction is made, and if the difference is less than or equal to 6 dB, then 1.3 dB is subtracted. Therefore, the presented results in such cases are the limit of measurement.



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- 4.9 The one-third octave band measurements were converted to octave bands to determine the maximum permitted noise levels in the 63Hz and 125Hz octave bands in the TRA Hall to achieve noise levels in habitable rooms compliant with Condition 11.
- 4.10 Sound level measurements were made using the equipment listed in Table T1. Calibration certificates are available on request.

Item	Manufacturer	Type
Sound Level Meter	Svantek	SV971A
Acoustic Calibrator	Rion	NC-74

T1 Equipment used during attended noise measurements.

- 4.11 The microphone was fitted with an appropriate windshield and was calibrated before and after the measurements. No significant drift was noted to have occurred.

## 5 Results and Observations

- 5.1 During the test, some ceiling tiles were not in place in the TRA Hall and some small areas around the external door were not fully sealed. These are not expected to have a significant effect on sound insulation performance of the overall construction at low frequencies, but some improvement may be achievable by including them.
- 5.2 The sound level difference values measured between the TRA Hall and the first-floor habitable rooms, at the worst-case speaker position, are summarised in Table T2.

Receive room	Weighted level difference $D_w$ , dB	Level difference $D$ , dB in octave band with centre frequency	
		63Hz	125Hz
Flat 12 Bedroom 1	70	37	54
Flat 12 Bedroom 2	75	38	55
Flat 12 Kitchen/diner	71	37	54
Flat 11 Bedroom	70	46	57
Flat 11 Kitchen/diner	73	36	56

T2 Measured sound insulation values

- 5.3 The level difference value measured in the 63Hz octave band is lower than would be expected from the construction specified.



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- 5.4 Based on the sound insulation values summarised in Table T2, when sound levels in the hall are limited to the values in Table T3, the requirements of Planning Condition 11 will be met.

Source room	$L_{eq,1min}$ , dB in octave band with centre frequency	
	63Hz	125Hz
TRA Hall	83	94

T3 Permissible sound levels in TRA Hall

- 5.5 We note that the limit set for the 63Hz octave band is relatively stringent and is not likely be suitable for most forms of amplified music. Music will not be able to operate in an unrestricted manner within the TRA Hall.
- 5.6 It may be possible to increase the limits marginally by undertaking further measurements with the inclusion of the secondary tiled ceiling in the TRA Hall and completing the sealing around the external door.
- 5.7 Should a substantial increase be desired, the slab, plasterboard ceiling and detailing including any penetrations should be reviewed against the design advice included in Report 16/0565/R3 'Acoustic Review' Revision 3, dated 17 August 2020.
- 5.8 With the inclusion of a limiting device to the specification in Table T3, the expected sound levels in rooms above are summarised in Table T4.

Receive room	Expected sound level $L_{eq}$ , dB in octave band with centre frequency ( <i>limit</i> )	
	63Hz	125Hz
Flat 12 Bedroom 1	46 (47)	40 (41)
Flat 12 Bedroom 2	45 (47)	39 (41)
Flat 12 Kitchen/diner	46 (47)	40 (41)
Flat 11 Bedroom	37 (47)	37 (41)
Flat 11 Kitchen/diner	47 (47)	38 (41)

T4 Expected sound levels in habitable rooms

## 6 Conclusion

- 6.1 A level difference measurement has been undertaken between the TRA Hall and habitable rooms above.



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- 6.2 By installing a limiter that complies with the limits included in Table T3 and the requirements of Condition 38, each of Conditions 38, 37 and 11 can be discharged.
- 6.3 Should a substantial increase be desired, the slab, plasterboard ceiling and detailing including any penetrations should be reviewed against the design advice included in Report 16/0565/R3 'Acoustic Review' Revision 3, dated 17 August 2020.

 End of Section





## Music noise levels (Conditions 11, 37 & 38)

# Glossary of Acoustic Terms

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### $L_{Aeq}$ :

The notional steady sound level (in dB) which over a stated period of time, would have the same A-weighted acoustic energy as the A-weighted fluctuating noise measurement over that period. Values are sometimes written using the alternative expression dB(A)  $L_{eq}$ .

### $L_{Amax}$ :

The maximum A-weighted sound pressure level recorded over the period stated.  $L_{Amax}$  is sometimes used in assessing environmental noise when occasional loud noises occur, which may have little effect on the  $L_{Aeq}$  noise level. Unless described otherwise,  $L_{Amax}$  is measured using the “fast” sound level meter response.

### $L_{A10}$ & $L_{A90}$ :

If non-steady noise is to be described, it is necessary to know both its level and degree of fluctuation. The  $L_{An}$  indices are used for this purpose. The term refers to the A-weighted level (in dB) exceeded for n% of the time specified.  $L_{A10}$  is the level exceeded for 10% of the time and as such gives an indication of the upper limit of fluctuating noise. Similarly  $L_{A90}$  gives an indication of the lower levels of fluctuating noise. It is often used to define the background noise.

$L_{A10}$  is commonly used to describe traffic noise. Values of dB  $L_{An}$  are sometimes written using the alternative expression dB(A)  $L_n$ .

### $L_{AX}$ , $L_{AE}$ or SEL

The single event noise exposure level which, when maintained for 1 second, contains the same quantity of sound energy as the actual time varying level of one noise event.  $L_{AX}$  values for contributing noise sources can be considered as individual building blocks in the construction of a calculated value of  $L_{Aeq}$  for the total noise. The  $L_{AX}$  term can sometimes be referred to as Exposure Level ( $L_{AE}$ ) or Single Event Level (SEL).

■ End of Section

