# 67 Whitfield Street
# London

## Report to Discharge Planning Condition 8

29832/SIT1

20 May 2022

For:
Derwent London
26 Saville Row
London
W1S 2ER

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Hann Tucker Associates

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# 29832/SIT1

## Contents



## Attachments

# Report to Discharge Planning Condition 8
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## Document Control

| Rev | Date | Comment | Prepared by | Authorised by |
|---|---|---|---|---|
| 0 | 30/05/2022 | - |  |  |
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# 1.0 Introduction

It is proposed to convert existing ground floor retail unit to restaurant use at 67 Whitfield Street, London.

The London Borough of Camden have imposed the condition outlined in Section 3.0 of this report, relating to sound insulation between non-residential and residential area.

Hann Tucker Associates visited 67 Whitfield Street on 25 May 2022 to undertake airborne sound insulation tests on selected separating floor constructions between ground floor retail unit and selected residential dwelling directly above.

The properties under test are conversion properties.

This report presents the results of the tests and compares them with sound insulation standards stipulated in the planning condition.

# 2.0 Objectives

To undertake airborne sound insulation tests on separating floor constructions between ground floor retail unit and selected residential dwelling directly above at 67 Whitfield Street.

To compare the results of the tests with sound insulation standards stipulated within the planning condition imposed by the Local Authority.

These objectives are as set out in Part 2.0 of our letter dated 03 May 2022 and written instruction received on 12 May 2022.

# 3.0 Planning Condition 8

The London Borough of Camden have imposed Planning Condition 8 relating to sound insulation between non-residential and residential areas:

"*8. Prior to commencement of the use hereby approved, details shall be submitted to and approved in writing by the Council, of the sound insulation of the floor/ceiling/ walls separating the commercial part(s) of the premises from noise sensitive premises. Details shall demonstrate that the sound insulation value DnTw is enhanced by at least 10dB above the Building Regulations value and, where necessary, additional mitigation measures are implemented to contain commercial noise within the commercial premises and to achieve the criteria of*

*BS8233:2014 within the noise sensitive premises. Approved details shall be implemented prior to occupation of the development and thereafter be permanently retained.*

*Reason: To safeguard the amenities of the adjoining premises and the area generally in accordance with the requirements of policies D1, A1, and A4 of the London Borough of Camden Local Plan 2017.*"

# 4.0 Test Procedure

The testing was carried out by Kyungmin Kim, Assistant Consultant.

The table below lists the equipment used to carry out the test.

| Description | Manufacturer | Type | Serial Number | Calibration |
|---|---|---|---|---|
| Type 1 ½" Condenser Microphone | ACO Pacific | 7052E | 71752 | Calibration on 17/08/2020 |
| Type 1 Preamp | Bruel & Kjaer | ZC0032 | 27782 | Calibration on 17/08/2020 |
| Type 1 Data Logging Sound Level Meter | Bruel & Kjaer | 2250 | 3025254 | Calibration on 17/08/2020 |
| SLM Calibrator | Bruel & Kjaer | 4231 | 2308993 | Calibration on 27/08/2021 |
| Noise Source - Custom made, un-ported sealed cabinet type | N/A | N/A | N/A | N/A |

## 4.1 Airborne Sound Insulation Test Method (Separating Floors)

Hann Tucker Associates attended site on 25 May 2022, to undertake airborne sound insulation tests to selected separating floor constructions. The tests were undertaken in full accordance with BS EN ISO 140-4:1998 Acoustics – Measurement of airborne sound insulation in buildings and of building elements – Part 4: Field measurement of airborne sound insulation between rooms.

The sound level differences were determined by generating a broad band, random diffuse sound field within the source room. A spatial average of the resulting $^1/_3$ octave band noise levels was obtained within the source room from measurements undertaken over a time period of a least 30 seconds. The measurement procedure was repeated in the receive room. A second speaker position was then selected in the source room and the measurement procedure

was repeated.

The receive levels were corrected for background noise where necessary as follows:

Where the measured background noise level in each 1/3rd octave band was more than 6dB but less than 10dB below the receive level, the following formula was applied:

$$L = 10\log\left(10^{\frac{L_{SB}}{10}} - 10^{\frac{L_B}{10}}\right) \text{ dB}$$

where

$L$ is the adjusted signal level in decibels;

$L_{SB}$ is the level of the signal and background noise levels combined, in decibels;

$L_B$ is the background level in decibels.

Where the measured background noise level was less than 6dB below the receive level, a correction of 1.3dB was applied (corresponding to a level difference of 6dB) and the ≥ symbol was added to the results to show that the reported values are the limit of measurement.

The corrected receive levels are subtracted from the source levels to determine the level differences over the frequency range 100-3150Hz from each source position. The level differences for each source position are arithmetically averaged at each frequency band to give the level difference, D.

Reverberant decays were then recorded in the receive room to determine the reverberation times over the same frequency range using a broadband noise source. For each receiver room 6No. measurements were made, comprising of 2No. source positions and 3No. microphone positions per source position. The reverberation time, T, used in subsequent calculations is an average of the 2No. source positions.

Having established 1/3 octave band level differences and reverberation times over the frequency range 100-3150Hz, the Standardised Level Difference, $D_{nT,}$ is calculated for each 1/3 octave band by applying the following formula:

$$D_{nT} = D + 10\log_{10}\left(\frac{T}{T_0}\right)$$

*where $T_0$=0.5 seconds*

The $^1/_3$ octave band results are then compared with a standard curve using the method described in BS EN ISO 717-1: 1997 to determine the single figure descriptor of airborne sound insulation, the Weighted Standardised Level Difference, or $D_{nT,w}$.

The $^1/_3$ octave band results are also weighted using spectrum adaptation term no.2, $C_{tr}$, as detailed in BS EN ISO 717-1: 1997, to allow a more rigorous assessment of sound insulation performance with respect to low frequency noise.

The Weighted Standardised Level Difference and spectrum adaptation term are then added to give $D_{nT,w} + C_{tr}$, allowing comparison with the minimum airborne sound insulation requirements of Approved Document E.

## 4.2 Background Noise

The background noise levels were measured in each receive room in order to correct the received noise measurements for the effect of the prevailing noise climate.

The prevailing background noise comprised nearby construction noise and road traffic noise from the surrounding road network and noise from children's playground.

## 4.3 Test Locations

All rooms tested had all doors and windows fitted and closed. The rooms were furnished.

The following airborne floor tests were undertaken:

| Test | Source Room | | Receive Room | | Tested Construction Details |
|---|---|---|---|---|---|
| | Location | Approximate Volume | Location | Approximate Volume | |
| AF1 | 67 Whitfield St Ground Floor Retail Unit | 200m$^3$ | Flat 102 Living Room | 50m$^3$ | 20mm Timber floor + 19mm OSB/chipboard + 80mm cradle & batten system, min. 150mm in-situ cast concrete |
| AF2 | 67 Whitfield St Ground Floor Retail Unit | 200m$^3$ | Flat 102 Bedroom | 35m$^3$ | |

There were no carpets present on the floors. There were step/staggers on all floors.

### 4.4 Annex B Test Procedures

All the test procedures within Annex B of Approved Document E: 2003 Edition have been followed.

## 5.0 Requirements Of Approved Document E

To satisfy Requirement E1 of Approved Document E: 2003 Edition, the following sound insulation values should be achieved:-

| Table 1a: Dwellings – performance standards for separating floors, and stairs that have a separating function. | | |
|---|---|---|
| | Airborne Sound Insulation $D_{nT,w} + C_{tr}$ dB (Minimum Values) | Impact Sound Insulation $L'_{nT,w}$ dB (Maximum Values) |
| **Dwellings formed by material change of use** | | |
| Floors and stairs | 43 | 64 |

Planning Condition 8 requires all divisions (walls and/or floors) separating non-residential/residential areas to achieve a level of protection which is at least +10dB above the Approved Document E standard (Dwelling houses and flats) for airborne sound insulation.

Therefore the minimum value of weighted standardised level difference ($D_{nT,w}$) plus the spectrum adaptation curve ($C_{tr}$) as defined in BS EN ISO 717-1: 1997 stipulated by Planning Condition 8 and Approved Document E: 2003 Edition: Sound Insulation Standards for airborne sound tests is 53dB for dwellings formed by material change of use.

## 6.0 Results

The results of the tests and analysis are given in the attached Certificate 29832/C1 and 29832/C2.

The following tables summarise our findings:

| Airborne Tests Across Separating Floors | $D_{nT,w} + C_{tr}$ | | Approved Document E Compliance |
|---|---|---|---|
| | Test Result* | Required | |
| AF1 | 55 dB | ≥ 53 dB | Pass |
| AF2 | 56 dB | ≥ 53 dB | Pass |

*Tests results including the ≥ symbol are background limited

With reference to Section 3.0, Section 5.0, and Section 6.0 the results for the floors tested are

greater than the minimum target value for airborne sound insulation as stated in Planning Condition 8 and Approved Document E: 2003 Edition, and thus should be considered to satisfy the requirements.

## 7.0 Conclusion

Hann Tucker Associates have undertaken airborne sound insulation tests across separating floor constructions between ground floor retail unit and selected residential dwelling directly above at 67 Whitfield Street.

The results apply to the sample as provided or presented.

The airborne sound insulation performance ($D_{nT,w}$ + $C_{tr}$) of the separating wall constructions tested are greater than the minimum target value for airborne sound insulation as stated in Planning Condition 8 and Approved Document E: 2003 Edition, and thus should be considered to satisfy the requirements.

The results relate only to the floors tested. All data contained in this report (plot numbers, drawings etc.) has been provided by the client.

**END OF REPORT**

# Appendix A

(Including 2No. Graphs)

29832/C2

# Standardised level difference according to ISO 140-4
# Field measurements of airborne sound insulation between rooms

## Project Details

Development: 67 Whitfield Street  Client: Derwent London  Report Ref: 29832/SIT1

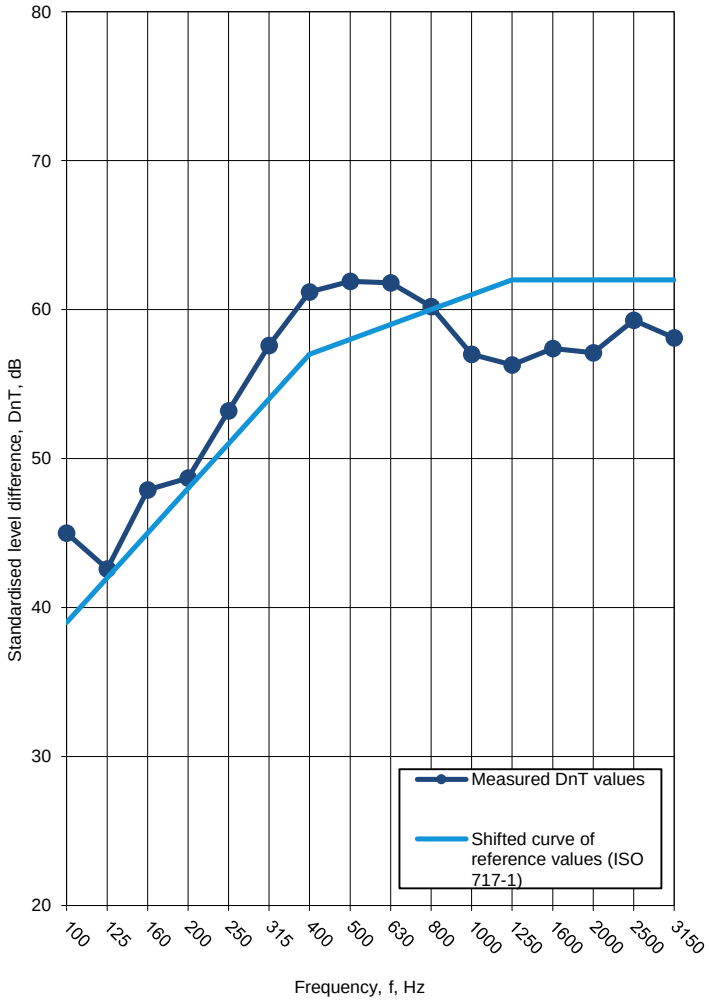
## Airborne Wall Sound Insulation Test: AW1

Date of test: 25/05/2022

Source Room: 67 Whitfield St Retail Unit  Approximate Source Room Volume: 200m³

Receive Room: Flat 102 Living Room  Approximate Receive Room Volume: 50m³

| Frequency f Hz | DnT dB |
|---|---|
| 100 | 45 |
| 125 | 43 |
| 160 | 48 |
| 200 | 49 |
| 250 | 53 |
| 315 | 58 |
| 400 | 61 |
| 500 | ≥ 62 |
| 630 | ≥ 62 |
| 800 | ≥ 60 |
| 1000 | ≥ 57 |
| 1250 | ≥ 56 |
| 1600 | ≥ 57 |
| 2000 | ≥ 57 |
| 2500 | ≥ 59 |
| 3150 | ≥ 58 |




## Test Result

$D_{nT,w} + C_{tr} = \geq 55$

## Rating according to ISO 717-1:

$D_{nT,w}$ ($C;C_{tr}$) = ≥ 58 ( -1 ; -3 ) dB;  $C_{(100\text{-}3150)}$ = -1 dB

$D_{nT,w}$ = ≥ 58 dB  $C_{tr\ (100\text{-}3150)}$ -3 dB

Evaluation based on field measurement results obtained in one third octave bands by an engineering method

## Certificate Ref: 29832/SIT1/C1

Test organisation: Hann Tucker Associates

Date of issue: 27/05/2022

Test Engineer: Kyungmin Kim

Test Engineer No: 71

Test Engineer Signature: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# Standardised level difference according to ISO 140-4
# Field measurements of airborne sound insulation between rooms

## Project Details

Development: 67 Whitfield Street  Client: Derwent London  Report Ref: 29832/SIT1

## Airborne Wall Sound Insulation Test: AW2

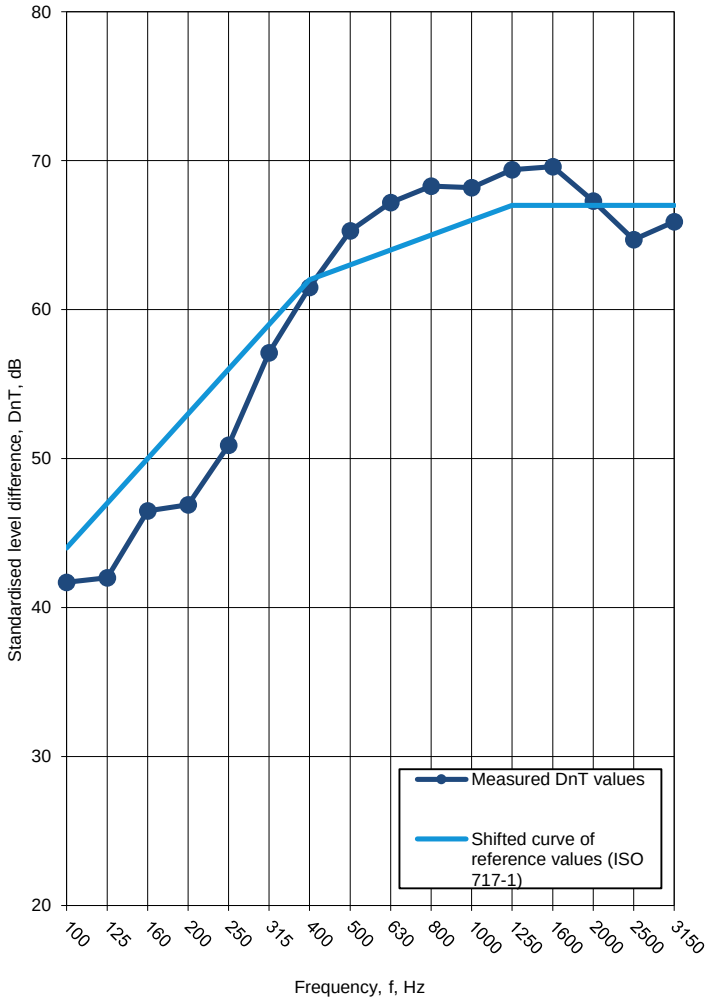
Date of test: 25/05/2022

Source Room: 67 Whitfield St Retail Unit  Approximate Source Room Volume: 200m³

Receive Room: Flat 102 Bedroom  Approximate Receive Room Volume: 35m³

| Frequency f Hz | DnT dB |
|---|---|
| 100 | 42 |
| 125 | 42 |
| 160 | 47 |
| 200 | 47 |
| 250 | 51 |
| 315 | 57 |
| 400 | 62 |
| 500 | ≥ 65 |
| 630 | ≥ 67 |
| 800 | ≥ 68 |
| 1000 | ≥ 68 |
| 1250 | ≥ 69 |
| 1600 | ≥ 70 |
| 2000 | ≥ 67 |
| 2500 | ≥ 65 |
| 3150 | ≥ 66 |

$D_{nT,w} + C_{tr} =$ ≥ 56




## Rating according to ISO 717-1:

$D_{nT,w}$ ($C;C_{tr}$) = ≥ 63 ( -2 ; -7 ) dB;  $C_{(100-3150)}$ = -2 dB

$D_{nT,w}$ = ≥ 63 dB  $C_{tr\ (100-3150)}$ -7 dB

Evaluation based on field measurement results obtained in one third octave bands by an engineering method

## Certificate Ref: 29832/SIT1/C2

Test organisation: Hann Tucker Associates

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