

APPROVED DOCUMENT E SOUND INSULATION MEASUREMENT
GROUND AND FIRST FLOOR OF MEMO'S CAFÉ 50 WIND STREET NEATH
ACOUSTIC CONSULTANCY REPORT 8086NEATH



Test Procedure

1.1 Purpose of Tests

It is proposed to maintain the ground floor of the building as a retail café and to convert the first floor into a residential flat. The purpose of this measurement is to determine the $DnT(ctr)$ between the ground and first floor partition of Memo's Café at 50 Wind Street, Neath SA11 3EN.

1.2 Test Particulars

An airborne sound insulation measurement was undertaken between the ground floor retail café and first floor of 50 Wind Street. Both floors are part of the same building and the first floor is directly above the ground floor. The two floors share a ceiling / floor partition.

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The schedule of testing is shown in Table 1. The measurements were taken on behalf of Memo's Cafe by Donald Angir MloA BA(Hons), Noise Consultant, of Noise Survey Limited on the 17th January 2025.

1.3 Instrumentation

The sound insulation test was conducted using the following instrumentation;

- Cesva SC310 Class 1 Sound Level Meter
- Casella Sound Level Meter Calibrator
- 1 amplified loud speaker.
- A noise generator (White and Pink Noise)

The meter was calibrated prior to the tests and the calibration checked on completion and no significant change occurred.

1.4 Test Method (Airborne Sound Insulation)

Airborne sound insulation tests were undertaken in accordance with the requirements of BS EN ISO 140-4: 1998 and the guidance in Annex B to Approved Document E.

All measurements were in 1/3rd octaves.

1.5 Reverberation Time

Reverberation times in the receiver room were recorded using a single loudspeaker position, 3 measurement positions and 2 readings at each position in accordance with ISO 354:2003, all arithmetically averaged to derive third octave band T60 for the receiver room.

1.6 Reverberation Measurement

Reverberation measurements were taken at each one of 3 sound level meter positions using broadband pink noise. A total of 6 measurements were taken and logarithmically averaged to produce a single set of 1/3rd octave $L_{eq,T}$ readings.

1.7 Noise in the Source and Receiving Room

Five positions were used in each room. Readings were taken at each of the 5 positions in the receiving and source room. The measured levels were then logarithmically averaged to obtain third octave band $L_{eq,T}$ levels for each room.

The noise level measurements from the receiver room were corrected using the receiver room reverberation time measurements to determine the standardised level difference D_{nT} and compared with the reference curves to provide a $D_{nT,w}$ as stipulated in Annex B of Approved Document E and weighted in accordance with ISO 717-1:1997. A C_{tr} correction was applied to the sound spectrum in compliance with the approved documents.

1.8 Schedule of Tests

Details of the test and the relevant requirements of Approved Document E are provided in the attached table T1.

2.0 AIRBORNE MEASUREMENT RESULTS

Source	Volume m^3	Receiving Room	Volume m^3	Structure	Test Date	Ref	$D_{nT,w} + C_{tr}$ (dB) Achieved	$D_{nT,w} + C_{tr}$ (dB) Required	Pass / Fail
Ground floor Room 1	159	Large first floor room of the proposed flat	273	Ceiling of ground floor and floor of first floor	17 th Jan 2025	808 6N EA TH	44	>43	Pass

Table T1. The minimum $D_{nT,W}(C:C_{tr})$ for rooms for residential purposes formed by a material change of use is 43dB. The partition between the retail ground floor and the first floor achieved $D_{nT,W}(C:C_{tr})$ 44dB.

2.1 Third Octave Band Results

Third octave band results for each test are provided in the attached graphs

3.0 Conclusion

1.1 The airborne sound measurement, conducted on the 17th January 2025 shows a current $D_{nT,W} + (C_{tr})$ of 44dB for the partitions consisting of a ceiling. This is greater than the required minimum of $D_{nT,W} + C_{tr}$ of 43dB and meets the planning condition.

Authorised

Donald I Angir

Donald Angir MIOA Dip(IoA) BA(Hons), Noise Consultant, Noise Survey Limited

Date: 24th January 2025



Picture 2: Ground floor retail café seating area used as receiving room.

Equipment:

- Cesva SC310 Type 1 sound level meter serial T237608 UKAS calibrated Cert U42983/U42984 in 17th January 2023 by Campbell Associated Limited
- Casella Cel-110/1 Class 1 Acoustic calibrator calibrated 14th July 2023 by Pennine Instrument Services cert no. 059962-1 meter serial 138252
- Single speaker noise source (Pink Noise)

Graph 1 below: Graph of partition ceiling between the ground oand first floor of 50 Wind Street, Neath.

Client : Memo's Cafe

Test date : 17 January 2025

Description and identification of the building construction and test arrangement, direction of measurement :

Airborne sound insulation measurement between the ground floor retail unit and the first floor proposed flat. The ground floor cafe seating area was the receiver room and the first floor proposed flat was the receiver room. The partition is a floor/ceiling whose construction type is unknown with ceiling tiles and solid flooring.

Source room volume = 272.70 m³Receiving room volume : 158.80 m³

Figure 1 is a line graph showing the standardized level difference, D_{nT} , in dB, versus frequency, f , in Hz. The y-axis ranges from 20 to 80 dB, and the x-axis ranges from 63 to 4000 Hz. The graph includes four curves:

- Standardized level difference, D_{nT}** (solid line): This curve starts at approximately 30 dB at 125 Hz, rises to about 38 dB at 250 Hz, 40 dB at 350 Hz, 38 dB at 500 Hz, 42 dB at 630 Hz, 42 dB at 800 Hz, 47 dB at 1000 Hz, 47 dB at 1250 Hz, 48 dB at 1500 Hz, 58 dB at 2000 Hz, and 60 dB at 3000 Hz.
- Frequency range according to the norm ISO 717-1** (dashed line): This curve starts at approximately 25 dB at 125 Hz, rises to about 38 dB at 250 Hz, 43 dB at 350 Hz, 44 dB at 500 Hz, 46 dB at 630 Hz, 47 dB at 800 Hz, 48 dB at 1000 Hz, 48 dB at 1250 Hz, 48 dB at 1500 Hz, 48 dB at 2000 Hz, and 48 dB at 3000 Hz.
- Reference curve according to the norm ISO 717-1** (solid line): This curve starts at approximately 33 dB at 125 Hz, rises to about 38 dB at 250 Hz, 40 dB at 350 Hz, 42 dB at 500 Hz, 45 dB at 630 Hz, 47 dB at 800 Hz, 50 dB at 1000 Hz, 52 dB at 1250 Hz, 55 dB at 1500 Hz, 58 dB at 2000 Hz, and 60 dB at 3000 Hz.
- Displaced reference curve according to the norm ISO 717-1** (dashed line): This curve starts at approximately 33 dB at 125 Hz, rises to about 38 dB at 250 Hz, 40 dB at 350 Hz, 42 dB at 500 Hz, 45 dB at 630 Hz, 47 dB at 800 Hz, 50 dB at 1000 Hz, 52 dB at 1250 Hz, 55 dB at 1500 Hz, 58 dB at 2000 Hz, and 60 dB at 3000 Hz.

* Maximum background noise correction

Rating according to ISO 717-1

$$DnT_{w(C;Ctr)} = 44 \text{ (-1 ; -4) dB;}$$

Evaluation based on in situ measurement results obtained by an engineering method (1/3 octave)

No. of test report : 8086NEATH

Name of test institute : Noise Survey Limited

Date : 24 January 2025

Signature :