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Sound Insulation Test Report

Document Information

Name of Client : SRI LANAKAN & SOUTH INDIAN TAKEAWAY

Property Address : 15 Commercial Road, Port
Talbot, SA13 1LN

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For and on behalf of CTPS Sound Testing				

Revision	Date	Description	Prepared	Reviewed/ Approved
None				

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Appendix A Acoustic Terminology

1.0 Introduction

- 1.1. CTPS Sound Testing has been commissioned by SRI LANAKAN & SOUTH INDIAN TAKEAWAY to undertake airborne and impact sound insulation testing at 15 Commercial Road and the adjoining Residential/Commercial Properties located above and below.
- 1.2. Works have recently been completed to improve the sound insulation within the property which has been renovated. Sound insulation testing has been carried out to determine whether the sound insulation of the separating walls, floors and ceilings has met the project design criteria and conforms to current Part E Building Regulations criteria.
- 1.3. This report contains details of the sound insulation tests conducted and the results achieved.
- 1.4. A glossary of acoustic terminology is given in **Appendix A**.

2.0 Site details

- 2.1. The SRI LANAKAN & SOUTH INDIAN TAKEAWAY is a Building which has a commercial Takeaway shop on the Ground Floor and Domestic residential Flats above the Premises.

3.0 Assessment criteria

Building Regulations Approved Document E

- 3.1. The 2003 Edition (incorporating 2004, 2010, 2013 and 2015 amendments) of the Building Regulations 2010 gives minimum standards for airborne and impact sound insulation between dwellings, and between dwellings and other occupancies, and are primarily aimed at controlling domestic noise transfer.
- 3.2. Therefore, under the requirements of Approved Document E, the airborne sound insulation of a separating wall must be at least 43dB $D_{nT,w} + C_{tr}$, the airborne sound insulation of a separating floor must be at least 43dB $D_{nT,w} + C_{tr}$ and the impact sound insulation of a separating floor must be no more than 64dB $L'_{nT,w}$.
- 3.3. Approved Document E of the Building Regulations contains the following regarding non-domestic uses:

“0.8 The performance standards set out in Tables 1 a and 1 b are appropriate for walls, floors and stairs that separate spaces used for normal Domestic/Commercial purposes. A higher standard of sound insulation may be required between spaces used for normal domestic purposes and communal or non-domestic purposes. In these situations the appropriate level of sound insulation will depend on the noise generated in the communal or non- domestic space. Specialist advice may be needed to establish if a higher standard of sound insulation is required and, if so, to determine the appropriate level.”

BS 8233:2014

3.4. The minimum standards in the Building Regulations may not be sufficient to control noise, if the noise levels in the non-residential premises may be higher than would usually be expected for a dwelling. Guidance is therefore sought from BS 8233:2014 - ‘*Guidance on sound insulation and noise reduction for buildings*’.

3.5. Section 7.5 ‘*Internal Sound Insulation*’ of BS 8233: 2014, states the following:

“... sound from adjacent spaces can affect the intended use, depending on the noise activity, noise sensitivity and privacy requirement. A matrix may be used to determine the sound insulation requirement of separating partitions once the noise activity, noise sensitivity and privacy requirements for each room and space. An example matrix, which can be adapted according to the specific building use, is given in Table 3. Each room may be both a source and a receiving room. Where adjacent rooms have different uses, the worst case sound insulation should be specified.’

Table 3 Example on-site sound insulation matrix (dB $D_{nT,w}$)

Privacy requirement	Activity noise of source room	Noise sensitivity of receiving rooms		
		Low sensitivity	Medium sensitivity	Sensitive
Confidential	Very high	47	52	57 ^{A)}
	High	47	47	52
	Typical	47	47	47
	Low	42	42	47
Moderate	Very high	47	52	57 ^{A)}
	High	37	42	47
	Typical	37	37	42
	Low	No rating	No rating	37
Not private	Very high	47	52	57 ^{A)}
	High	37	42	47
	Typical	No rating	37	42
	Low	No rating	No rating	37

NOTE Background noise can also influence privacy. See also 7.7.6.3.

^{A)} $D_{nT,w}$ 55 dB or greater is difficult to obtain on site and room adjacencies requiring these levels should be avoided wherever practical.

3.6. There is an element of professional judgement required with regard to the acoustic categorization of each space.

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- 3.8. Based on these considerations, the sound insulation of the partition separating these spaces should not be lower than 57dB $D_{nT,w}$ based on the matrix table in BS 8233:2014.
- 3.9. This requirement is in addition to the criterion in Building Regulations.

4.0 Sound insulation testing

Floor, ceiling and partition wall constructions

- 4.1. The separating partitions have been tested between the Takeaway Shop and the upper Domestic Dwelling

Measurement methodology

- 4.2. The sound insulation testing was undertaken on Sunday 25th January 2026. The following instrumentation was used during the test

Details of sound insulation test equipment

Equipment Description	Type	Manufacturer	Calibration certificate no.	Date of Last Calibration
Powered Music/Radio	Standard Radio	N/A	N/A	05/01/2026
Class 1 Sound level meter	S8607	Pak That Technology	N/A	05/01/2026
Calibrator	Svantek SV 40A / 10843	Svantek	1500732-1	05/01/2026

- 4.3. The meters used were calibrated before and after testing using the Svantek SV40A Class 1L Acoustical Calibrator with a level of 114dB at 1000Hz applied to the measurement equipment. The readings were not found have deviated by more than +/-0.1dB.

Testing methodology

- 4.5. Measurements of airborne sound insulation between rooms were undertaken in accordance with BS EN ISO 16283-1:2014 '*Acoustics: Field measurement of sound insulation in buildings and of building elements. Part 1: Airborne sound insulation*', with the exception of the averaging procedure which follows the guidance advocated in Annex B (Paragraph B2.6) in Approved Document E of the Building Regulations 2000.
- 4.6. Pink noise was generated in the source room during testing using a Radio loudspeaker. Two separate one-third octave band sound pressure levels were measured in the source room and two in the receiver room using a moving microphone. The measurement time with each individual microphone position was 30 seconds. Two 30-second background sound pressure levels were undertaken in the receiver room using a moving microphone.
- 4.7. Reverberation times were measured in the receiving room, twice at each of three microphone positions using an interrupted noise source.
- 4.8. The following separation distances were respected during the testing:
 - 0.5m between any microphone position and the room boundaries;
 - 1.0m between any microphone position and the loudspeaker.
- 4.9. Measurements of impact sound insulation between rooms were undertaken in accordance with ISO 140-7:1998. The airborne sound insulation ratings were calculated in accordance with BS EN

ISO 717-2:2013 'Acoustics - Rating of sound insulation in buildings and of building elements - Part 2 Impact sound insulation'. A tapping machine was placed on the floor in the source room at no fewer than four positions and measurements, of at least ten seconds, were made at no fewer than six positions in the receive room.

Sound insulation test results

- 4.10. The results of the sound insulation test are provided in Table 4, below, summaries of the assessment of the test results against the design criteria detailed in Section 3.0.

Table 4 Summary of airborne and impact sound insulation test results

Test	Source Room	Receiver Room	Measured Sound Insulation	Recommended Performance	Pass / Fail
	Description	Description			
01	Takeaway Shop	Upper Domestic Dwellings	30dB	(BS 8233:2014)	Pass
		With Extract fan operating (4 Hour duration)	42dB	(Building Regulations)	Pass
02	Upper Domestic Dwellings	Takeaway Shop With Extract fan operating (4 Hour duration)	38dB	(Building Regulations)	Pass
03	Upper Domestic Dwellings	Takeaway Shop			
		With Radio Impact Noise (4 Hour Duration)	35dB	(Building Regulations)	Pass
04	Takeaway Shop	Upper Domestic Dwellings (Night time)	44dB	(Building Regulations)	Pass
		With Extract fan operating (4 Hour duration)			
05	Takeaway Shop	External Grounds Front and rear (Night Time)	35dB	(Building Regulations)	Pass
		With Extract fan operating (4 Hour duration)			

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Test	Source Room	Receiver Room	Measured Sound Insulation	Recommended Performance	Pass / Fail
	Description	Description			
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6.0 Discussion of results

- 6.1. The airborne and impact sound insulation tests conducted show that every tested building element has met the minimum Building Regulations standard and the project design criteria defined using BS 8233:2014.

7.0 Conclusion

- 7.1. CTPS Sound Testing has been commissioned by SRI LANAKAN & SOUTH INDIAN TAKEAWAY to undertake airborne and impact sound insulation testing at 15 Commercial Road, Port Talbot, SA13 1LN. Commercial Takeaway Shop on the ground floor and the Domestic Flats above the Shop.
- 7.2. Works have recently been completed to improve the sound insulation at the property which has been renovated. Sound insulation testing was required to determine whether the sound insulation of the separating walls, floors and ceilings has met the project design criteria.
- 7.3. The airborne and impact sound insulation tests conducted show that every tested building element has met the minimum Part E of Building Regulations standard and the design criteria defined using BS 8233:2014. Table 4 shows the results of sound measurements. The soundproofing insulation has met the criteria required.

Parameter	Description
Decibel (dB)	A scale for comparing the ratios of two quantities, including sound pressure and sound power. The difference in level between two sounds s_1 and s_2 is given by $20 \log_{10} (s_1/s_2)$. The decibel can also be used to measure absolute quantities by specifying a reference value that fixes one point on the scale. For sound pressure, the reference value is $20\mu\text{Pa}$. The threshold of normal hearing is in the region of 0 dB and 140 dB is the threshold of pain. A change of 1 dB is only perceptible under controlled conditions.
dB(A), L_{Ax}	Decibels measured on a sound level meter incorporating a frequency weighting (A weighting) which differentiates between sounds of different frequency (pitch) in a similar way to the human ear. Measurements in dB(A) broadly agree with people's assessment of loudness. A change of 3 dB(A) is the minimum perceptible under normal conditions, and a change of 10 dB(A) corresponds roughly to halving or doubling the loudness of a sound. The background noise in a living room may be about 30 dB(A); normal conversation about 60 dB(A) at 1 meter; heavy road traffic about 80 dB(A) at 10 meters; the level near a pneumatic drill about 100 dB(A).
Fast Time Weighting	Setting on sound level meter, denoted by a subscript F, that determines the speed at which the instrument responds to changes in the amplitude of any measured signal. The fast time weighting can lead to higher values than the slow time weighting when rapidly changing signals are measured. The average time constant for the fast response setting is 0.125 (1/8) seconds.
Free-field	Sound pressure level measured outside, far away from reflecting surfaces (except the ground), usually taken to mean at least 3.5 meters
$L_{Aeq,T}$	A noise level index called the equivalent continuous noise level over the time period T. This is the level of a notional steady sound that would contain the same amount of sound energy as the actual, possibly fluctuating, sound that was recorded.
$D_{nT,w}$	Weighted standardized level difference. Single-number quantity that characterizes the airborne sound insulation between rooms.
C_{tr}	Spectrum adaption term applied to $D_{nT,w}$ (and similar) parameters to mimic the frequency content of traffic noise sources. Also used in England and Wales Building Regulations to control low frequency noise between dwellings.
