

Studio Acoustics UK Ltd Sound Insulation Test Report

Address of building: Previous County Services Building, Fountain Street Leek ST13 6JR

Type of Property: Commercial four story building converted into 21 flats.

Date of testing: 24th July 2021

Carried Out By: Studio Acoustics UK Ltd

Prepared by: James Robbins, Studio Acoustics UK Ltd.

Prepared for: Fountain house Developments

Report Numbers: JR210724001 - JR210724012

Vertical / Horizontal airborne and impact sound insulation testing has been carried out at the above address. Testing complies with BS EN ISO 140 series and BS EN ISO 717 series, to ensure the building element conforms to the performance requirements of Approved Document E (ADE) of the Building Regulations 2010. +10% of the dividing elements walls floors have been randomly chosen for testing.

Party floor airborne testing	Passed
Party floor impact testing	Passed
Party wall airborne testing	Passed

Approved for issue on behalf of Studio Acoustics UK Ltd.



James Robbins MIET (Director)
Studio Acoustics UK Ltd.

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1.0 Introduction

Studio Acoustics UK Ltd has been commissioned by Fountain house Developments to test the above address for horizontal airborne of party walls and vertical / impact testing of party floors. Testing has been carried out to assess whether or not the acoustical performance between dwellings conformed to the requirements of Approved Document E (ADE) of the Building Regulations Part E 2010.

Full test details are given in Appendix A, required minimum and maximum dB levels for testing can be found below in table 1 below, on site measurements can be found in table 2 page 4 below and compared with table 1 for compliance.

2.0 The Building Regulations (2010)

Approved Document E of the Building Regulations (2010) sets out guideline sound insulation values that should be achieved under test if acoustical performance is to be deemed acceptable. The following table shows the levels required by Approved Document E.

Table 1: Building Regulations Performance Requirements –
Material Change of use Rooms for residential purposes.

	Airborne sound insulation $D_{nT,w} + C_{tr}$ dB (minimum values)	Impact sound insulation $L'_{nT,w}$ dB (maximum values)
Walls	43	-
Floors and Stairs	43	64

3.0 Test Schedule Details

A diagram of the development is attached at Appendix C to aid in identifying the rooms under test in testing schedule 1-12 below.

Note bedrooms will not pass impact testing if left with the concrete screed, these bedroom areas are not yet complete but we are told that the bedroom areas will be finished in the same way as the lounge kitchen that have passed the impact testing.

The following tests were carried out:

Tests 1-12:

1. Horizontal sound test is required between dividing party walls, here testing was carried out between 2nd floor flats 12 to 13 bedrooms
2. Vertical sound test is required between dividing party floors, here testing was carried out between 2nd floor flat 12 into 3rd floor flat 17 bedrooms
3. Horizontal sound test is required between dividing party walls, here testing was carried out between 2nd floor flats 16 to 15 kitchen lounge
4. Vertical sound test is required between dividing party floors, here testing was carried out between 2nd floor flat 16 into 3rd floor flat 21 kitchen lounge
5. Horizontal sound test is required between dividing party walls, here testing was carried out between 2nd floor flats 14 to 15 bedrooms
6. Vertical sound test is required between dividing party floors, here testing was carried out between 2nd floor flat 16 into 3rd floor flat 21 kitchen lounge
7. Horizontal sound test is required between dividing party walls, here testing was carried out between 3rd floor flats 17 to 18 bedrooms
8. Impact testing is required between dividing party floors, here testing was carried out between 3rd floor flat 20 into 2nd floor flat 15 lounge kitchen
9. Horizontal sound test is required between dividing party walls, here testing was carried out between 3rd floor flats 21 to 20 lounge kitchen
10. Impact testing is required between dividing party floors, here testing was carried out between 3rd floor flat 21 into 2nd floor flat 16 Bedrooms
11. Horizontal sound test is required between dividing party walls, here testing was carried out between 3rd floor flats 20 to 19 lounge kitchen
12. Impact testing is required between dividing party floors, here testing was carried out between 3rd floor flat 19 into 2nd floor flat 14 lounge kitchen

3.1 Calculated Sound Insulation Performance (Floors and Wall Under Test)

Table 2

The results of the tests are summarised in the table below.

Test Detailed	Achieved level (dB)	Pass/Fail
1. Horizontal sound test is required between dividing party walls, here testing was carried out between 2nd floor flats 12 to 13 bedrooms	47 (min 43)	Pass
2. Vertical sound test is required between dividing party floors, here testing was carried out between 2nd floor flat 12 into 3rd floor flat 17 bedrooms	62 (min 43)	Pass#
3. Horizontal sound test is required between dividing party walls, here testing was carried out between 2nd floor flats 16 to 15 kitchen lounge	52 (min 44)	Pass
4. Vertical sound test is required between dividing party floors, here testing was carried out between 2nd floor flat 16 into 3rd floor flat 21 kitchen lounge	63 (min 43)	Pass#
5. Horizontal sound test is required between dividing party walls, here testing was carried out between 2nd floor flats 14 to 15 bedrooms	49 (min 43)	Pass
6. Vertical sound test is required between dividing party floors, here testing was carried out between 2nd floor flat 16 into 3rd floor flat 21 kitchen lounge	59 (min 43)	Pass#
7. Horizontal sound test is required between dividing party walls, here testing was carried out between 3rd floor flats 17 to 18 bedrooms	48 (min 43)	Pass
8. Impact testing is required between dividing party floors, here testing was carried out between 3rd floor flat 20 into 2nd floor flat 15 lounge kitchen	45 (max 64)	Pass#
9. Horizontal sound test is required between dividing party walls, here testing was carried out between 3rd floor flats 21 to 20 lounge kitchen	51 (min 43)	Pass
10. Impact testing is required between dividing party floors, here testing was carried out between 3rd floor flat 21 into 2nd floor flat 16 Bedrooms	56 (max 64)	Pass #
11. Horizontal sound test is required between dividing party walls, here testing was carried out between 3rd floor flats 20 to 19 lounge kitchen	48 (min 43)	Pass
12. Impact testing is required between dividing party floors, here testing was carried out between 3rd floor flat 19 into 2nd floor flat 14 lounge kitchen	51 (max 64)	Pass

Excellent Noise reduction

4.0 Site Notes

All rooms under test were un-furnished and near completion, extremely hard vinyl flooring laid onto a rubber bonding had already been laid down in lounge kitchen areas, these areas past impact testing but the bedrooms also require this finish or an acoustic resilient layer as these areas are not yet complete. For impact testing a board was laid on top of the vinyl and the test machinery placed on top. Doors windows were installed and closed on the top two floors as required, walls were plastered and painted.

Note the floors are identical and so the top two were chosen for testing, the ground and 1st floor were missing entrance doors.

4.1 Construction Detail

Floor

- Solid concrete floor between 150mm +
- Suspended metal frame ceiling
- Acoustic insulation
- Fire check wall board
- 3mm plaster skim

Walls

Walls are thought to be 75mm studs, some with 50mm insulation with 12.5mm fire stop , minimum build as follows

- x2 layers 12.5 sound bloc wall boards
- 75mm metal stud
- 75mm acoustic insulation
- x2 layers 12.5 sound bloc

5.0 Discussion of The Results

All party airborne floor elements under test have surpassed the (ADE) Building Regulations achieving excellent levels of noise reduction, impact through floors has varying levels of performance but has passed in areas where a rubber bonding layer is affixed to the screed and the tough vinyl finish, walls passed minimum standards.

Appendix A – Test Equipment and Procedures

A1. Table identifying Norsonic Instrumentation used for testing:

Norsonic model	Equipment Type	Serial Number
Nor-140	Real Time Analyser	# 1402812
Nor-1225	Microphone	# 79711
Nor-1201	Pre-amplifier	(Nor 140)
Nor-1251	Sound Level Calibrator (fitted with adapter type 1443)	# 31701
Nor-250	Sound Source	# 31455
Nor-260	Power Amplifier	# 2803707

Calibration certificates are available upon request.

A2. Procedure:

Before and after the survey the measurement apparatus was check calibrated to an accuracy of 0.2 dB using the Sound Level Calibrator. The Calibrator produces a sound pressure level of 113.9 dB re:2 x 10⁻⁵ Pa at a frequency of 1 kHz. The source speaker is checked for output levels.

Testing was carried out in accordance with Annex B of Approved Document E and the relevant BS EN ISO standards identified below.

For airborne sound insulation tests, a loudspeaker is placed in the "source room". The source noise level is measured. The room on the other side of the party construction is the "receiver room" and the noise level coming through from the source room is then measured. Several readings are taken for each test, and the standard deviation calculated to ensure a balanced record of the partition performance is obtained.

Background noise readings are taken in the receive room to subtract from the measurements where required to account for environmental noise which would otherwise affect the test results. Reverberation time measurements are made to normalize the readings as required by the required standards. The interrupted source method was used for reverberation measurements.

A difference in source and receiver noise levels is measured and calculated in accordance with BS EN ISO 140-4:1998 1998 "Field measurements of airborne sound insulation between rooms". The resulting frequency dependent level differences are converted into "a single number characterising the acoustical performance" using the method given in BS EN ISO 717-1:1997, namely the Weighted Standardised Level Difference ($D_{nT,w}$).

For impact sound insulation tests, a standard tapping machine is placed on the floor above a receiving room. The noise level from the machine tapping is then measured in the receiver room. This level is measured and calculated for each floor in accordance with BS EN ISO 140-7:1998 "Field measurements of impact sound insulation of floors". The results are converted into a single number using the method given in BS EN ISO 717-2:1997 namely the Weighted Standardised Impact Sound Pressure Level ($L'_{nT,w}$).

Appendix B – Formula for Calculation of Weighted Standardised Level Difference (airborne and impact sound)

Airborne,

Standardised level difference ($D_{n,T}$) for airborne sound is calculated using the following formula given in BS EN ISO 140-4:1998.

$$D_{n,T} = L_1 - L_2 + 10 \log_{10} (T/T_o) \text{ dB}$$

where:

- L_1 is the average sound pressure level in the source room
- L_2 is the average sound pressure level in the receiving room
- T is the reverberation time in the receiving room
- T_o is the reference reverberation time
(0.5 seconds for dwellings)

To calculate the Weighted Standardised Level Difference ($D_{nT,w}$), the reference curve defined in BS EN ISO 717-1:1997 is compared with the results of the above calculation. The reference curve is shifted in steps of 1 dB towards the measured curve until the mean unfavourable deviation is as large as possible but not more than 32 dB. The weighted level is then the value of the shifted reference curve at 500 Hz.

Impact,

Standardised impact sound pressure level (L'_{nT}) is calculated using the following formula given in BS EN ISO 140-7:1998.

$$L'_{nT} = L_i - 10 \log_{10} (T/T_o) \text{ dB}$$

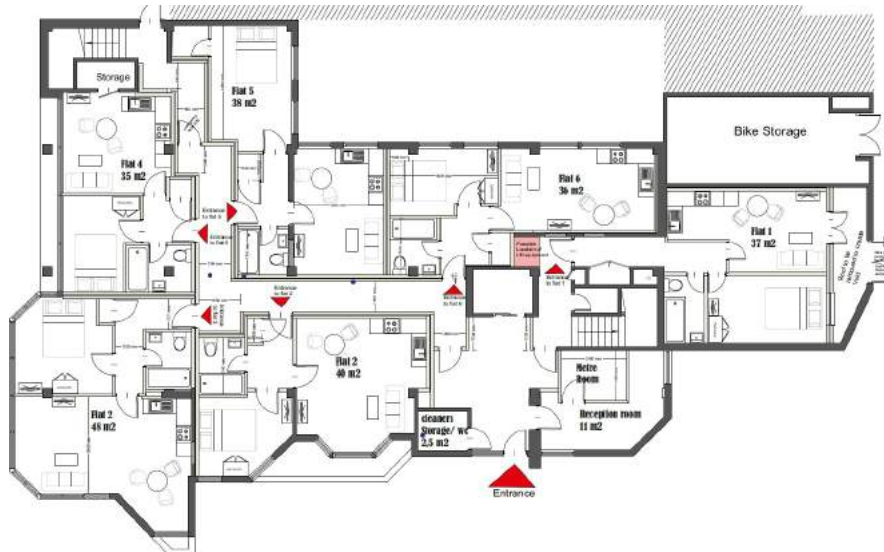
where:

- L_i is the impact sound pressure level in the receiving room
- T is the reverberation time in the receiving room
- T_o is the reference reverberation time
(0.5 seconds for dwellings)

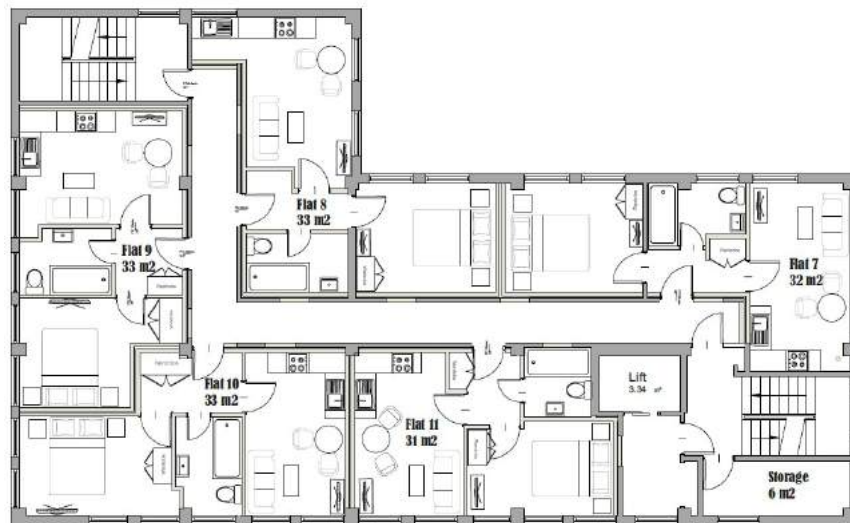
To calculate the Weighted Standardised Impact Sound Pressure Level ($L'_{nT,w}$), the reference curve defined in BS EN ISO 717-2:1997 is compared with the results of the above calculation. The reference curve is shifted in steps of 1 dB towards the measured curve until the mean unfavourable deviation is as large as possible but not more than 32 dB. The weighted level is then the value of the reference curve at 500 Hz.

Appendix C – layout.

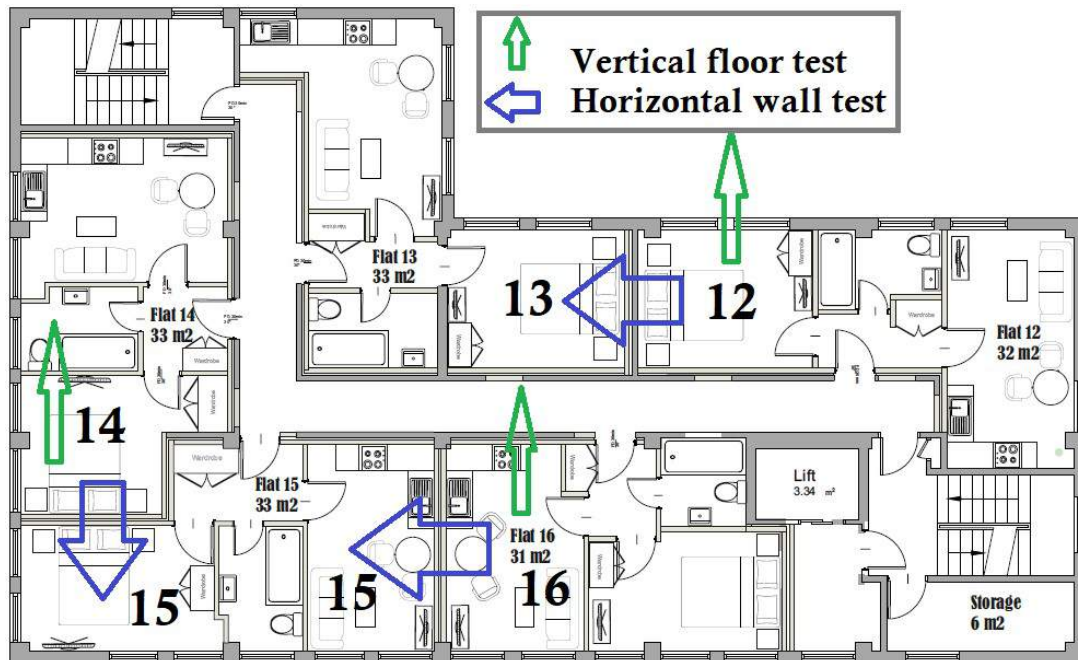
Ground (No doors, not tested)



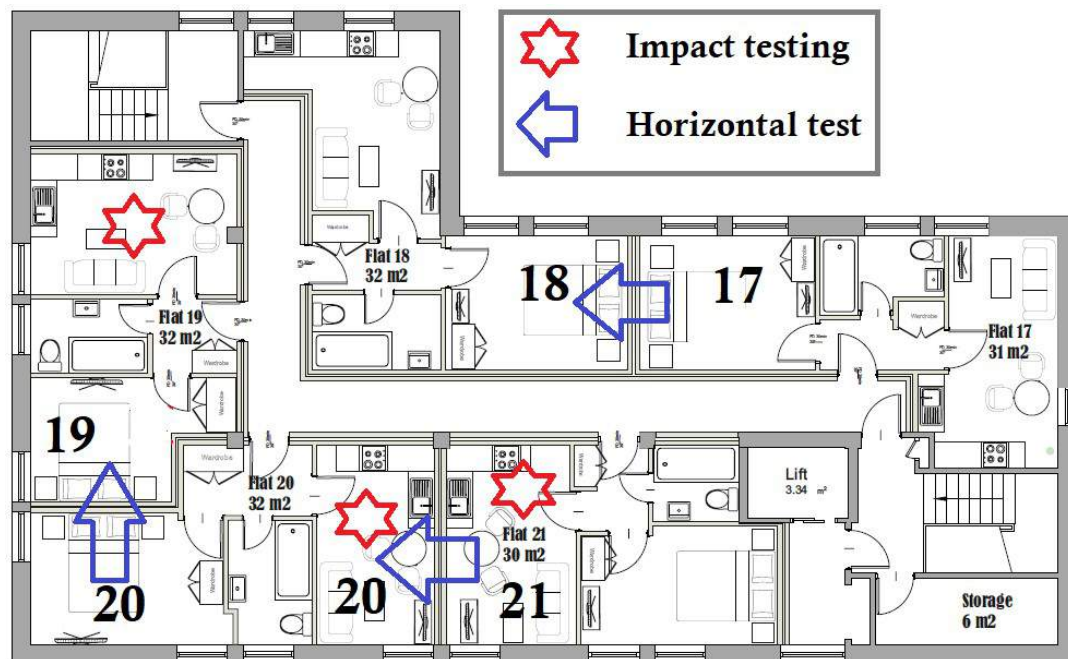
1st floor (No doors not tested)



2nd floor



3rd floor



Appendix D - Calculation of Weighted Standardised Level Difference:

See attached sheets - Report Numbers:

Reports:

Test Detailed	Number
1. Horizontal sound test is required between dividing party walls, here testing was carried out between 2nd floor flats 12 to 13 bedrooms	JR210724001
2. Vertical sound test is required between dividing party floors, here testing was carried out between 2nd floor flat 12 into 3rd floor flat 17 bedrooms	JR210724002
3. Horizontal sound test is required between dividing party walls, here testing was carried out between 2nd floor flats 16 to 15 kitchen lounge	JR210724003
4. Vertical sound test is required between dividing party floors, here testing was carried out between 2nd floor flat 16 into 3rd floor flat 21 kitchen lounge	JR210724004
5. Horizontal sound test is required between dividing party walls, here testing was carried out between 2nd floor flats 14 to 15 bedrooms	JR210724005
6. Vertical sound test is required between dividing party floors, here testing was carried out between 2nd floor flat 16 into 3rd floor flat 21 kitchen lounge	JR210724006
7. Horizontal sound test is required between dividing party walls, here testing was carried out between 3rd floor flats 17 to 18 bedrooms	JR210724007
8. Impact testing is required between dividing party floors, here testing was carried out between 3rd floor flat 20 into 2nd floor flat 15 lounge kitchen	JR210724008A
9. Horizontal sound test is required between dividing party walls, here testing was carried out between 3rd floor flats 21 to 20 lounge kitchen	JR210724009
10. Impact testing is required between dividing party floors, here testing was carried out between 3rd floor flat 21 into 2nd floor flat 16 Bedrooms	JR210724010
11. Horizontal sound test is required between dividing party walls, here testing was carried out between 3rd floor flats 20 to 19 lounge kitchen	JR210724011
12. Impact testing is required between dividing party floors, here testing was carried out between 3rd floor flat 19 into 2nd floor flat 14 lounge kitchen	JR210724012A

Standardized level difference according to BS EN ISO 140-4

Field measurements of airborne sound insulation between rooms

Client: Sunder Site : Previous County Services Building, Fountain Street, Leek, ST13 6JR Date of test: 24th July 2021
Description: Building Regulations Approved Document E (ADE) states that a horizontal sound test is required between dividing party walls, here testing was carried out between 2nd floor flats 12 to 13 bedrooms

Object: A minimum of 43dB noise reduction must be met, here data gathered achieved a figure of 47dB and therefore passed ADE

Source room volume: 24.0 m³
Receiving room volume: 24.0 m³

Frequency f [Hz]	D _{nT} 1/3 octave [dB]
50	21.5
63	28.1
80	29.0
100	27.4
125	43.9
160	40.7
200	47.4
250	49.8
315	54.5
400	58.8
500	59.0
630	59.1
800	60.7
1,000	60.2
1,250	58.7
1,600	59.5
2,000	58.6
2,500	58.4
3,150	61.4
4,000	66.6
5,000	68.1



Rating according to ISO 717-1

$D_{nT,w}(C;C_{tr}) = 58 (-4; -11)$ dB

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

$C_{50-3150} = -6$ dB

$C_{tr,50-3150} = -16$ dB

$C_{50-5000} = -5$ dB

$C_{tr,50-5000} = -16$ dB

$C_{100-5000} = -3$ dB

$C_{tr,100-5000} = -11$ dB

Company: Studio Acoustics UK Ltd

No. of test report: JR210724001

Date: 26/07/2021

Signature:

Standardized level difference according to BS EN ISO 140-4

Field measurements of airborne sound insulation between rooms

Client: Sunder Site : Previous County Services Building, Fountain Street, Leek, ST13 6JR Date of test: 24th July 2021
Description: Building Regulations Approved Document E (ADE) states that a vertical sound test is required between dividing party floors, here testing was carried out between 2nd floor flat 12 into 3rd floor flat 17 bedrooms

Object: A minimum of 43dB noise reduction must be met, here data gathered achieved a figure of 62dB and therefore passed ADE, note humans perceive a 10dB level difference change sound pressure as double or half as the source, here as the data is nearly 20dB better than required this reading has quadrupled the minimum standards for noise reduction. Excellent result.

Source room volume: 24.0 m³
Receiving room volume: 24.0 m³

Frequency f [Hz]	D _{nT} 1/3 octave [dB]
50	37.7
63	34.8
80	42.8
100	50.8
125	55.0
160	57.2
200	55.5
250	54.8
315	61.5
400	63.5
500	63.7
630	62.7
800	64.3
1,000	66.3
1,250	66.1
1,600	64.8
2,000	65.3
2,500	67.2
3,150	67.3
4,000	70.8
5,000	72.5



Rating according to ISO 717-1

$D_{nT,w}(C;C_w) = 65 (-1; -3)$ dB

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

$C_{50-3150} = -2$ dB

$C_{tr,50-3150} = -10$ dB

$C_{50-5000} = -1$ dB

$C_{tr,50-5000} = -10$ dB

$C_{100-5000} = 0$ dB

$C_{tr,100-5000} = -3$ dB

Company: Studio Acoustics UK Ltd

No. of test report: JR210724002

Date: 26/07/2021

Signature:

Standardized level difference according to BS EN ISO 140-4

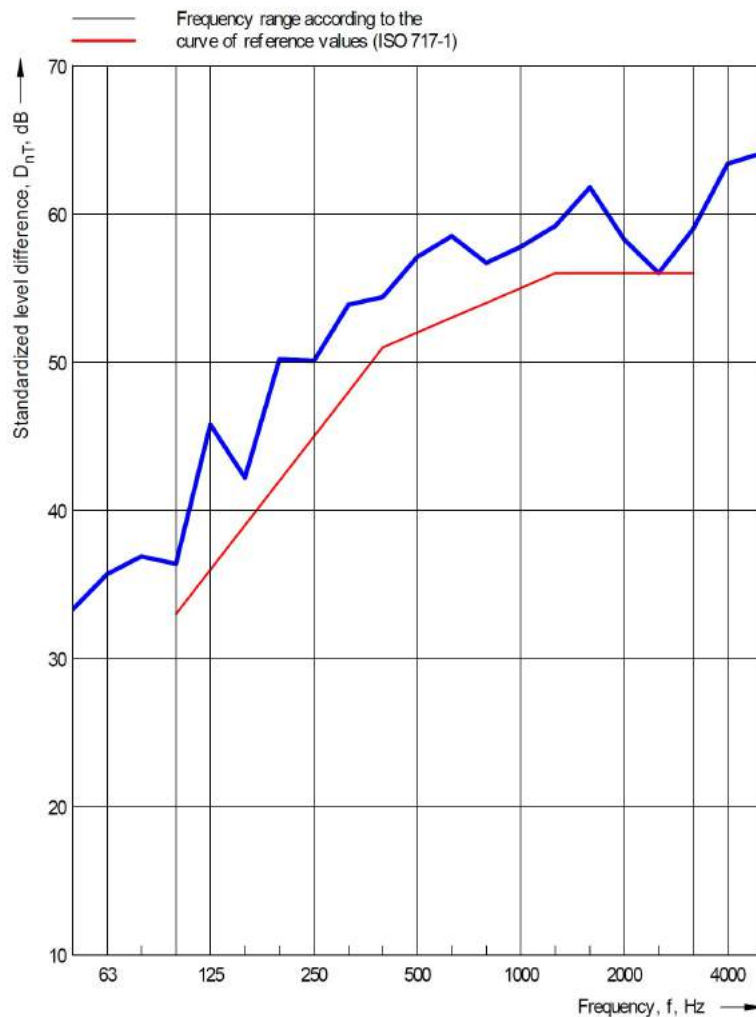
Field measurements of airborne sound insulation between rooms

Client: Sunder Site : Previous County Services Building, Fountain Street, Leek, ST13 6JR Date of test: 24th July 2021
Description: Building Regulations Approved Document E (ADE) states that a horizontal sound test is required between dividing party walls, here testing was carried out between 2nd floor flats 16 to 15 kitchens lounge

Object: A minimum of 43dB noise reduction must be met, here data gathered achieved a figure of 52dB and therefore passed ADE

Source room volume: 26.0 m³
Receiving room volume: 26.0 m³

Frequency f [Hz]	D _{nT} 1/3 octave [dB]
50	33.3
63	35.7
80	36.9
100	36.4
125	45.8
160	42.2
200	50.2
250	50.1
315	53.9
400	54.4
500	57.1
630	58.5
800	56.7
1,000	57.8
1,250	59.2
1,600	61.8
2,000	58.3
2,500	56.0
3,150	59.0
4,000	63.4
5,000	64.1



Rating according to ISO 717-1

$D_{nT,w}(C;C_{tr}) = 57 (-1; -5) \text{ dB}$

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

$C_{50-3150} = -1 \text{ dB}$

$C_{tr,50-3150} = -7 \text{ dB}$

$C_{50-5000} = 0 \text{ dB}$

$C_{tr,50-5000} = -7 \text{ dB}$

$C_{100-5000} = 0 \text{ dB}$

$C_{tr,100-5000} = -5 \text{ dB}$

Company: Studio Acoustics UK Ltd

No. of test report: JR210724003

Date: 26/07/2021

Signature:

Standardized level difference according to BS EN ISO 140-4

Field measurements of airborne sound insulation between rooms

Client: Sunder Site : Previous County Services Building, Fountain Street, Leek, ST13 6JR Date of test: 24th July 2021
Description: Building Regulations Approved Document E (ADE) states that a Vertical sound test is required between dividing party floors, here testing was carried out between 2nd floor flat 16 into 3rd floor flat 21 kitchen lounge

Object: A minimum of 40dB noise reduction must be met, here data gathered achieved a figure of 60dB and therefore passed ADE, note humans perceive a 10dB level difference change sound pressure as double or half as the source, here as the data is nearly 20dB better than required this reading has quadrupled the minimum standards for noise reduction. Excellent result.

Source room volume: 26.0 m³
Receiving room volume: 26.0 m³

Frequency f [Hz]	D _{nT} 1/3 octave [dB]
50	39.7
63	45.9
80	42.7
100	47.5
125	55.9
160	51.7
200	56.4
250	58.2
315	62.4
400	64.1
500	66.9
630	68.6
800	69.9
1,000	71.9
1,250	73.8
1,600	74.9
2,000	75.4
2,500	74.2
3,150	75.1
4,000	79.7
5,000	80.4



Rating according to ISO 717-1

D_{nT,w} (C;C_{tr}) = 69 (-2; -6) dB

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

C₅₀₋₃₁₅₀ = -2 dB

C_{tr,50-3150} = -11 dB

C₅₀₋₅₀₀₀ = -2 dB

C_{tr,50-5000} = -11 dB

C₁₀₀₋₅₀₀₀ = -1 dB

C_{tr,100-5000} = -6 dB

Company: Studio Acoustics UK Ltd

No. of test report: JR210724004

Date: 26/07/2021

Signature:

Standardized level difference according to BS EN ISO 140-4

Field measurements of airborne sound insulation between rooms

Client: Sunder Site : Previous County Services Building, Fountain Street, Leek, ST13 6JR Date of test: 24th July 2021
Description: Building Regulations Approved Document E (ADE) states that a horizontal sound test is required between dividing party walls, here testing was carried out between 2nd floor flats 14 to 15 bedrooms

Object: A minimum of 40dB noise reduction must be met, here data gathered achieved a figure of 48dB and therefore passed ADE

Source room volume: 19.0 m³
Receiving room volume: 19.0 m³

Frequency f [Hz]	D _{nT} 1/3 octave [dB]
50	26.2
63	23.1
80	27.6
100	34.9
125	36.1
160	40.8
200	41.9
250	46.0
315	52.8
400	52.3
500	50.6
630	52.7
800	55.2
1,000	58.2
1,250	58.6
1,600	59.1
2,000	59.4
2,500	59.4
3,150	60.1
4,000	61.8
5,000	62.0



Rating according to ISO 717-1

$D_{nT,w}(C;C_p) = 55 (-2; -6)$ dB

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

$C_{50-3150} = -3$ dB

$C_{tr,50-3150} = -13$ dB

$C_{50-5000} = -2$ dB

$C_{tr,50-5000} = -13$ dB

$C_{100-5000} = -1$ dB

$C_{tr,100-5000} = -6$ dB

Company: Studio Acoustics UK Ltd

No. of test report: JR210724005

Date: 26/07/2021

Signature:

Standardized level difference according to BS EN ISO 140-4

Field measurements of airborne sound insulation between rooms

Client: Sunder Site : Previous County Services Building, Fountain Street, Leek, ST13 6JR Date of test: 24th July 2021
Description: Building Regulations Approved Document E (ADE) states that a vertical sound test is required between dividing party floors, here testing was carried out between 2nd floor flat 16 into 3rd floor flat 21 kitchen/lounge

Object: A minimum of 49dB noise reduction must be met, here data gathered achieved a figure of 49dB and therefore passed ADE. Note that we humans perceive a 10dB change in level as half or twice that of the source, so the data here has doubled that required for a minimum pass.

Source room volume: 19.0 m³
Receiving room volume: 19.0 m³

Frequency f [Hz]	D _{nT} 1/3 octave [dB]
50	37.9
63	43.3
80	45.1
100	45.1
125	53.3
160	52.2
200	54.0
250	54.6
315	60.4
400	58.4
500	57.2
630	61.8
800	63.7
1,000	65.4
1,250	63.7
1,600	64.3
2,000	65.7
2,500	65.7
3,150	65.8
4,000	67.8
5,000	69.1



Rating according to ISO 717-1

D_{nT,w} (C;C_{tr}) = 63 (-1; -4) dB

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

C₅₀₋₃₁₅₀ = -1 dB

C₅₀₋₅₀₀₀ = 0 dB

C₁₀₀₋₅₀₀₀ = 0 dB

C_{tr,50-3150} = -6 dB

C_{tr,50-5000} = -6 dB

C_{tr,100-5000} = -4 dB

Company: Studio Acoustics UK Ltd

No. of test report: JR210724006

Date: 26/07/2021

Signature:

Standardized level difference according to BS EN ISO 140-4

Field measurements of airborne sound insulation between rooms

Client: Sunder Site : Previous County Services Building, Fountain Street, Leek, ST13 6JR Date of test: 24th July 2021
Description: Building Regulations Approved Document E (ADE) states that a Horizontal sound test is required between dividing party walls, here testing was carried out between 3rd floor flats 17 to 18 bedrooms

Object: A minimum of 43dB noise reduction must be met, here it has been achieved a figure of 48dB and therefore passed ADE

Source room volume: 24.0 m³
Receiving room volume: 24.0 m³

Frequency f [Hz]	D _{nT} 1/3 octave [dB]
50	21.5
63	27.9
80	26.0
100	29.5
125	39.7
160	40.4
200	46.3
250	50.7
315	55.8
400	58.3
500	61.6
630	60.8
800	59.1
1,000	61.0
1,250	60.8
1,600	60.5
2,000	58.1
2,500	58.6
3,150	61.1
4,000	65.2
5,000	67.2



Rating according to ISO 717-1

$D_{nT,w}(C;C_w) = 58 (-3; -10)$ dB

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

$C_{50-3150} = -6$ dB

$C_{50-5000} = -5$ dB

$C_{100-5000} = -2$ dB

$C_{tr,50-3150} = -16$ dB

$C_{tr,50-5000} = -16$ dB

$C_{tr,100-5000} = -10$ dB

Company: Studio Acoustics UK Ltd

No. of test report: JR210724007

Date: 26/07/2021

Signature:

Standardized impact sound pressure levels according to ISO 140-7

Field measurements of impact sound insulation of floors

Client: Sunder Site : Previous County Services Building, Fountain Street, Leek, ST13 6JR Date of test: 24th July 2021
Description: Building Regulations Approved Document E (ADE) states that Impact testing is required between dividing party floors, here testing was carried out between 3rd floor flat 20 into 2nd floor flat 15 lounge/kitchen

Object: No more than a maximum of 64dB can transmit through the dividing party floor, here data measured 47dB and passed ADE requirements.

Source room volume: 26.0 m³
Receiving room volume: 26.0 m³

Frequency f [Hz]	L' _{nT} 1/3 octave [dB]
50	50.6
63	47.3
80	48.7
100	46.8
125	45.7
160	48.7
200	47.4
250	49.1
315	50.6
400	53.1
500	51.2
630	50.4
800	45.9
1,000	39.9
1,250	33.9
1,600	27.6
2,000	23.5
2,500	19.9
3,150	14.4
4,000	11.1
5,000	9.9



Rating according to ISO 717-2

$L'_{nT,w}(C_P) = 45 (0) \text{ dB}$

$C_{1,50-2500} = 1 \text{ dB}$

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

Company: Studio Acoustics UK Ltd

No. of test report: JR2107240108A

Date: 26/07/2021

Signature:

Standardized level difference according to BS EN ISO 140-4

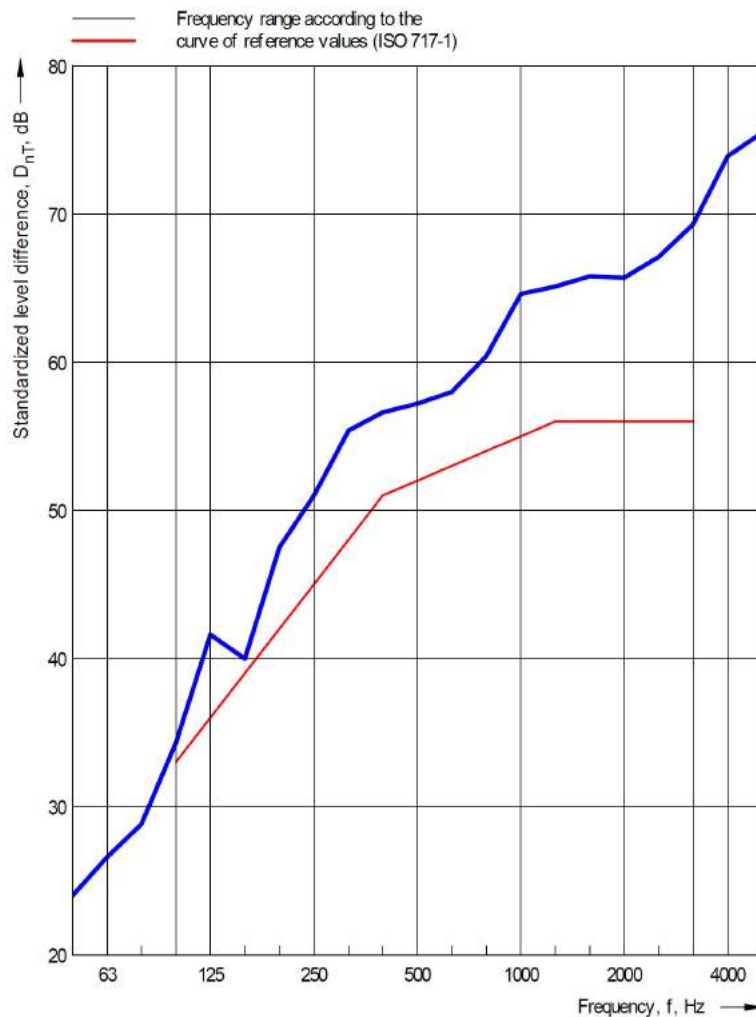
Field measurements of airborne sound insulation between rooms

Client: Sunder Site : Previous County Services Building, Fountain Street, Leek, ST13 6JR Date of test: 24th July 2021
Description: Building Regulations Approved Document E (ADE) states that a horizontal sound test is required between dividing party walls, here testing was carried out between 3rd floor flats 21 to 20 lounge/kitchen

Object: A minimum of 43dB noise reduction must be met, here data gathered achieved a figure of 51dB and therefore passed ADE

Source room volume: 26.0 m³
Receiving room volume: 26.0 m³

Frequency f [Hz]	D _{nT} 1/3 octave [dB]
50	24.0
63	26.6
80	28.8
100	34.3
125	41.6
160	40.0
200	47.5
250	51.0
315	55.4
400	56.6
500	57.2
630	58.0
800	60.4
1,000	64.6
1,250	65.1
1,600	65.8
2,000	65.7
2,500	67.1
3,150	69.3
4,000	73.9
5,000	75.5



Rating according to ISO 717-1

$D_{nT,w}(C;C_{tr}) = 60 (-3; -9)$ dB

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

$C_{50-3150} = -6$ dB

$C_{tr,50-3150} = -16$ dB

$C_{50-5000} = -5$ dB

$C_{tr,50-5000} = -16$ dB

$C_{100-5000} = -2$ dB

$C_{tr,100-5000} = -9$ dB

Company: Studio Acoustics UK Ltd

No. of test report: JR210724009

Date: 26/07/2021

Signature:

Standardized impact sound pressure levels according to ISO 140-7

Field measurements of impact sound insulation of floors

Client: Sunder Site : Previous County Services Building, Fountain Street, Leek, ST13 6JR Date of test: 24th July 2021
Description: Building Regulations Approved Document E (ADE) states that Impact testing is required between dividing party floors, here testing was carried out between 3rd floor flat 21 into 2nd floor flat 16 Bedrooms

Object: No more than a maximum of 64dB can pass through the dividing party floor, here data measured 66dB and failed ADE requirements. Please note that the rubber underlay and finished tiled flooring has not been installed.

Source room volume: 26.0 m³
Receiving room volume: 26.0 m³

Frequency f [Hz]	L' _{nT} 1/3 octave [dB]
50	54.2
63	48.9
80	49.6
100	44.5
125	46.9
160	48.3
200	48.6
250	49.3
315	50.6
400	51.5
500	52.5
630	51.2
800	49.4
1,000	50.6
1,250	49.4
1,600	49.8
2,000	49.7
2,500	50.7
3,150	48.2
4,000	42.3
5,000	32.9



Rating according to ISO 717-2

$$L'_{nT,w}(C_1) = 56 (-9) \text{ dB}$$

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

$$C_{1,50-2500} = -8 \text{ dB}$$

Company: Studio Acoustics UK Ltd

No. of test report: JR210724010

Date: 26/07/2021

Signature:

Standardized level difference according to BS EN ISO 140-4

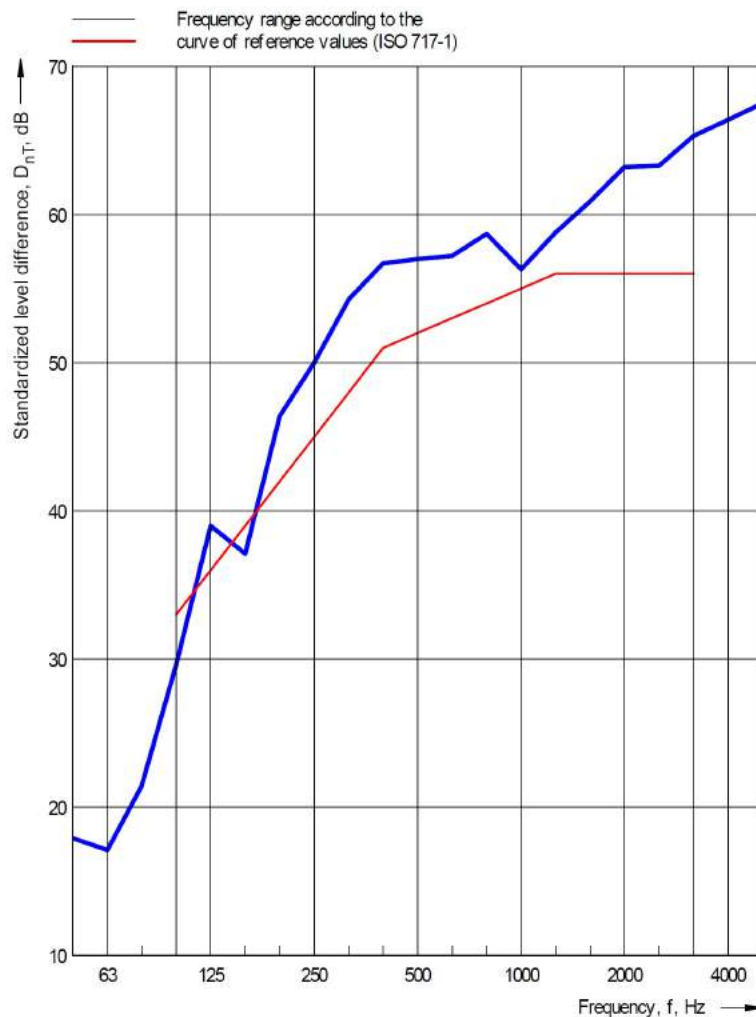
Field measurements of airborne sound insulation between rooms

Client: Sunder Site : Previous County Services Building, Fountain Street, Leek, ST13 6JR Date of test: 24th July 2021
Description: Building Regulations Approved Document E (ADE) states that a horizontal sound test is required between dividing party walls, here testing was carried out between 3rd floor flats 20 to 19 lounge/kitchen

Object: A minimum of 40dB noise reduction must be met, here data gathered achieved a figure of 46dB and therefore passed ADE

Source room volume: 24.0 m³
Receiving room volume: 24.0 m³

Frequency f [Hz]	D _{nT} 1/3 octave [dB]
50	17.9
63	17.1
80	21.4
100	29.6
125	39.0
160	37.1
200	46.4
250	50.0
315	54.3
400	56.7
500	57.0
630	57.2
800	58.7
1,000	56.3
1,250	58.8
1,600	60.9
2,000	63.2
2,500	63.3
3,150	65.3
4,000	66.4
5,000	67.5



Rating according to ISO 717-1

$D_{nT,w}(C;C_{tr}) = 57 (-3; -9)$ dB

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

$C_{50-3150} = -9$ dB

$C_{tr,50-3150} = -21$ dB

$C_{50-5000} = -8$ dB

$C_{tr,50-5000} = -21$ dB

$C_{100-5000} = -2$ dB

$C_{tr,100-5000} = -9$ dB

Company: Studio Acoustics UK Ltd

No. of test report: JR2107240011

Date: 26/07/2021

Signature:

Standardized impact sound pressure levels according to ISO 140-7

Field measurements of impact sound insulation of floors

Client: Sunder Site : Previous County Services Building, Fountain Street, Leek, ST13 6JR Date of test: 24th July 2021
Description: Building Regulations Approved Document E (ADE) states that Impact testing is required between dividing party floors, here testing was carried out between 3rd floor flat 20 into 2nd floor flat 15 lounge/kitchen

Object: No more than a maximum of 64dB can pass through the dividing party floor, here data measured 47dB and passed ADE requirements.

Source room volume: 31.031 m³
Receiving room volume: 26.0 m³

Frequency f [Hz]	L' _{nT} 1/3 octave [dB]
50	53.1
63	53.6
80	51.4
100	47.8
125	46.6
160	49.3
200	48.3
250	53.3
315	54.8
400	57.0
500	59.8
630	57.6
800	52.4
1,000	43.9
1,250	38.5
1,600	33.4
2,000	28.9
2,500	24.6
3,150	19.5
4,000	15.3
5,000	11.6



Rating according to ISO 717-2

$L'_{nT,w}(C_f) = 51 (-1)$ dB

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

$C_{f,50-2500} = 0$ dB

Company: Studio Acoustics UK Ltd

No. of test report: JR2107240112A

Date: 26/07/2021

Signature: