Acoustic Test Report

Project	Orchard House SEND School, Manchester
Client	Kier Construction - Liverpool
Report Reference:	OPP-092896N2

Version History

Version	Issue Date	Produced By	Authorised By	Comment
1	10/10/2025	Matt Jones	Neil Turnbull	
2	15/10/2025	Matt Jones	Tom Chaffer	Updated report with additional test results from 9th Octpber

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1 Test Details

Client	Kier Construction – Liverpool
Site Name	Orchard House SEND School
Site Address	Vickers Street, Manchester M40 8EF
Target Criteria	Building Bulletin 93 (BB93) v17 2015: Acoustic design of schools – performance standards
Permanent Address of Testing Laboratory	Stroma Built Environment. 6 Silkwood Business Park, Fryer's Way, Wakefield, WF5 9TJ
Authorised Tester(s)	Matt Jones

2 Performance standards

The assessment of the acoustic performance set out in this report has been based on the applicable performance standards given in:

- Building Bulletin 93 (BB93) v17 2015: *Acoustic design of schools – performance standards*

3 Test Results

3.1 Airborne Sound Insulation

Date of test	Test Report Number	Source Room Description	Receiver Room Description	Partition Type	$D_{nT,w}$ (dB)		Pass/Fail
					Measured	Required	
25/09/2025	OPP-092896N1AC	Classroom 4	Classroom 5	Wall	54	≥50	Pass
25/09/2025	OPP-092896N1AD	ICT Suite	Group Room 13	Wall	58	≥50	Pass
25/09/2025	OPP-092896N1AE	Quiet / Calming Room 1	Office / Meeting Room	Wall	51	≥50	Pass
25/09/2025	OPP-092896N1AF	Multi-Purpose Space	Group Room 12	Wall	54	≥50	Pass
25/09/2025	OPP-092896N1AG	Classroom 4	Classroom 7	Wall	52	≥50	Pass
25/09/2025	OPP-092896N1AH	Group Room 11	Group Room 10	Wall	51	≥50	Pass
25/09/2025	OPP-092896N1AI	Group Room 9	Group room 8	Wall	50	≥50	Pass
25/09/2025	OPP-092896N1AJ	Classroom 10	Classroom 11	Wall	51	≥50	Pass
25/09/2025	OPP-092896N1AL	Quiet / Calming Room 2	Therapy Room	Wall	58	≥50	Pass
25/09/2025	OPP-092896N1AM	Therapy Room	SEN Therapy / MI Room	Wall	50	≥40	Pass
25/09/2025	OPP-092896N1AN	Classroom 12	SEN Therapy / MI Room	Wall	48	≥45	Pass
25/09/2025	OPP-092896N1AO	Classroom 12	Classroom 13	Wall	56	≥50	Pass
25/09/2025	OPP-092896N1AP	Classroom 12	Group Room 5	Wall	51	≥50	Pass
25/09/2025	OPP-092896N1AQ	Group Room 4	Group Room 3	Wall	64	≥50	Pass
09/10/2025	OPP-092896N2AA	Group Room 1	Group Room 2	Wall	50	≥50	Pass
09/10/2025	OPP-092896N1AB	Group Room 15	Group Room 14	Wall	52	≥50	Pass
09/10/2025	OPP-092896N1AC	Group Room 7	Group Room 6	Wall	54	≥50	Pass
09/10/2025	OPP-092896N1AD	Sensory Regulation Room	Classroom 15	Wall	55	≥55	Pass

3.2 Reverberation Time

Date of test	Room	T20 reverberation time @ Frequency (Hz)						T_{mf} (sec)	BB93 Requirement T_{mf} (sec)	Pass/Fail
		125	250	500	1000	2000	4000			
25/09/2025	Group Room 2	0.45	0.53	0.47	0.44	0.43	0.50	0.5	≤0.4 & All bands ≤ 0.6	Pass*
25/09/2025	Group Room 10	0.52	0.57	0.46	0.44	0.44	0.48	0.5	≤0.4 & All bands ≤ 0.6	Pass*
25/09/2025	Therapy Room	-	-	0.73	0.64	0.83	-	0.7	≤0.8	Pass
25/09/2025	Meeting Room	-	-	0.42	0.45	0.66	-	0.5	≤0.8	Pass
25/09/2025	SEN Therapy/MI Room	-	-	0.77	0.76	0.89	-	0.8	≤0.8	Pass
25/09/2025	Group Room 5	0.53	0.61	0.47	0.43	0.44	0.62	0.5	≤0.4 & All bands ≤ 0.6	Pass*
25/09/2025	Group Room 3	0.43	0.56	0.47	0.44	0.44	0.51	0.5	≤0.4 & All bands ≤ 0.6	Pass*
09/10/2025	Group Room 14	0.42	0.51	0.43	0.43	0.46	0.53	0.4	≤0.4 & All bands ≤ 0.6	Pass
09/10/2025	Classroom 5	0.39	0.55	0.46	0.37	0.34	0.36	0.4	≤0.4 & All bands ≤ 0.6	Pass
09/10/2025	Group Room 13	0.45	0.46	0.39	0.36	0.33	0.34	0.4	≤0.4 & All bands ≤ 0.6	Pass
09/10/2025	Group Room 12	0.48	0.45	0.44	0.45	0.45	0.44	0.4	≤0.4 & All bands ≤ 0.6	Pass
09/10/2025	Classroom 7	0.38	0.42	0.46	0.44	0.44	0.42	0.4	≤0.4 & All bands ≤ 0.6	Pass
09/10/2025	Group Room 8	0.48	0.51	0.46	0.33	0.34	0.32	0.4	≤0.4 & All bands ≤ 0.6	Pass
09/10/2025	Classroom 11	0.48	0.55	0.45	0.41	0.47	0.51	0.4	≤0.4 & All bands ≤ 0.6	Pass
09/10/2025	Group Room 6	0.43	0.54	0.57	0.38	0.40	0.47	0.4	≤0.4 & All bands ≤ 0.6	Pass
09/10/2025	Classroom 13	0.44	0.53	0.57	0.39	0.39	0.48	0.4	≤0.4 & All bands ≤ 0.6	Pass

Notes to Table

*Rooms were unfurnished at the time of testing whilst BB93 allows criteria to be met in complete and furnished spaces. Additional absorption and diffusion due to furnishings will reduce the measured reverberation times. Measured result slightly exceeds criterion however compliance will be achieved when space is furnished for typical use

3.3 Indoor Ambient Noise Levels

Date of test	Test Room	Ventilation System	Ambient Noise Level (dB $L_{Aeq,T}$)		Pass/Fail
			Measured	Required	
25/09/2025	Classroom 2	Mechanical Ventilation - Background	30	30	Pass
25/09/2025		Mechanical Ventilation - Overheating	29	35	Pass
25/09/2025	Group Room 1	Mechanical Ventilation - Background	30	30	Pass
25/09/2025		Mechanical Ventilation - Overheating	30	35	Pass
25/09/2025	Classroom 5	Mechanical Ventilation - Background	30	30	Pass
25/09/2025		Mechanical Ventilation - Overheating	31	35	Pass
25/09/2025	Office/Meeting Room	Mechanical Ventilation - Background	38	40	Pass
25/09/2025		Mechanical Ventilation - Overheating	43	45	Pass
09/10/2025	Classroom 6	Mechanical Ventilation - Background	30	30	Pass
09/10/2025		Mechanical Ventilation - Overheating	32	35	Pass
09/10/2025	Group Room 12	Mechanical Ventilation - Background	29	30	Pass
09/10/2025		Mechanical Ventilation - Overheating	31	35	Pass
09/10/2025	Classroom 8	Mechanical Ventilation - Background	30	30	Pass
09/10/2025		Mechanical Ventilation - Overheating	35	35	Pass
09/10/2025	Group Room 10	Mechanical Ventilation - Background	29	30	Pass
09/10/2025	Classroom 11	Mechanical Ventilation - Background	27	30	Pass
09/10/2025		Mechanical Ventilation - Overheating	30	35	Pass
09/10/2025	Quiet/Calming Room 2	Mechanical Ventilation - Background	27	30	Pass
09/10/2025		Mechanical Ventilation - Overheating	32	35	Pass
09/10/2025	Classroom 12	Mechanical Ventilation - Background	28	30	Pass
09/10/2025		Mechanical Ventilation - Overheating	34	35	Pass
09/10/2025	Group Room 5	Mechanical Ventilation - Background	26	30	Pass
09/10/2025		Mechanical Ventilation - Overheating	32	35	Pass
09/10/2025	Group Room 4	Mechanical Ventilation - Background	27	30	Pass
09/10/2025		Mechanical Ventilation - Overheating	31	35	Pass

4 Equipment

Equipment used to carry out accredited testing is calibrated accordingly to fulfil the requirements of the UKAS publication *LAB 23 - Traceability for Equipment Used in Acoustical Testing'*. Current calibration certificates are available upon request.

Sound Level Meter	Bruel & Kjaer - 2250
Microphone	Bruel & Kjaer - 4189
Calibrator	Bruel & Kjaer - 4231
Sound Source	QTX - QR12PA

5 Test Methodology

Airborne Sound Insulation Test Standards

- Annex B of Approved Document E *'Resistance to the passage of sound'* (2003 edition incorporating 2004, 2010, 2013 & 2015 amendments)
- BS EN ISO 16283-1:2014 '*Acoustics — Field measurement of sound insulation in buildings and of building elements Part 1: Airborne sound insulation'*
- BS EN ISO 717-1:1997 '*Acoustics – Rating of Sound Insulation in Buildings and of Building Elements – Part 1: Airborne Sound Insulation'*

ANC Good Practice Guide for Indoor ambient noise level measurements

- ANC School Good Practice Guide Nov 2015 Version-2.0 Section 8

ANC Good Practice Guide for Mid-frequency reverberation time measurements

- ANC School Good Practice Guide Nov 2015 Version-2.0 Section 9

Test Conditions	
All test rooms essentially complete and unfurnished. All doors and windows shut including ventilators where applicable. All cupboard/en-suite doors open where applicable. Background noise sources	
Sound Field Sampling Method	Manually scanned
Frequency Range of Measurements	100 Hz – 3150 Hz
Sound Level Meter Sensitivity Variation	No significant variation in sensitivity levels observed over test period
Reverberation Time Measurement	
Measurement Method	Interrupted
Source Positions	2 No. minimum
Microphone Positions	6 No. minimum per speaker position. Minimum 12 measurements in total
Evaluation Range	20dB (T_{20})
Background Noise Measurement	
Measurement Method	1 No. per source position minimum. Duration as appropriate
Measurement of Airborne Sound Insulation	
Source Positions	2 independently driven sound sources operating simultaneously
Measurement Averaging Time	1 x 30 seconds
6dB rule met in all source rooms	Yes

6 Result Charts

Standardized level difference measured in accordance with ISO 16283-1
Field measurements of airborne sound insulation between rooms

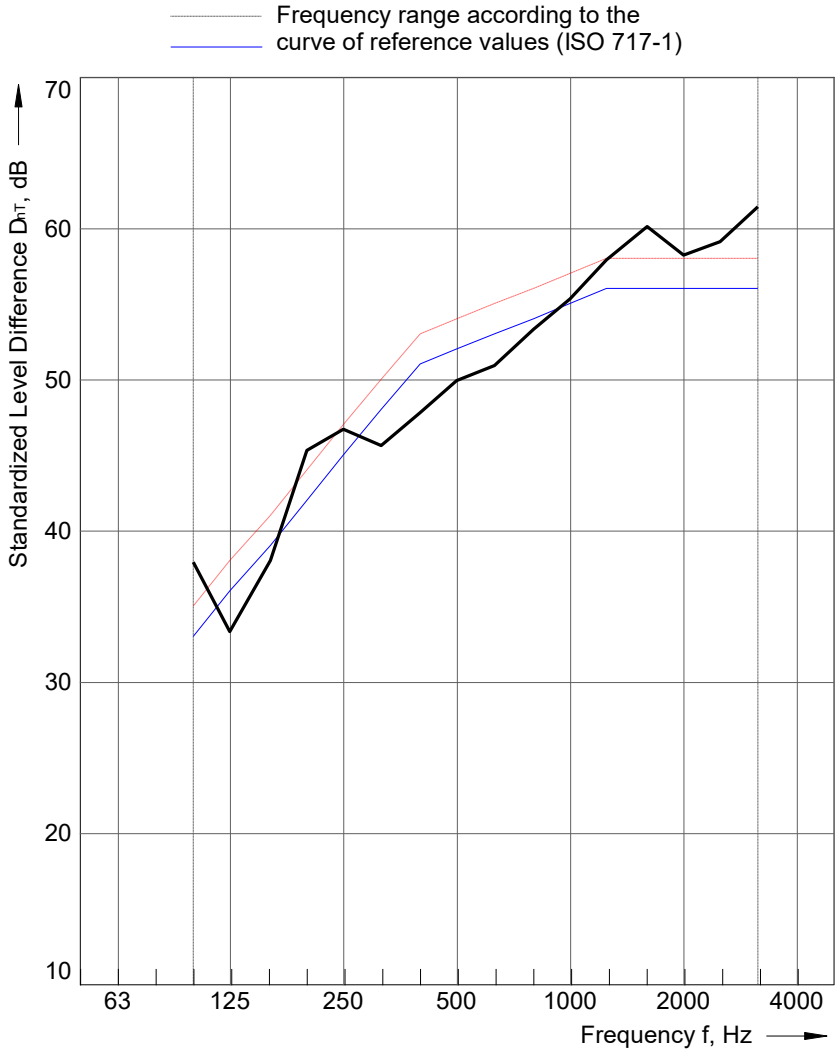
Client: Kier Construction - Liverpool

Date of test: 25/09/2025

Description and identification of the building construction and test arrangement, direction of measurement etc.: See report

Area of common partition : 21.00 m²
Receiving room volume: 149.00 m³
Source room volume: 149.00 m³

Frequency f Hz	D_{nT} 1/3 Octave dB
50	
63	
80	
100	37.9
125	33.3
160	38.0
200	45.3
250	46.7
315	45.6
400	47.8
500	49.9
630	50.9
800	53.3
1000	55.3
1250	57.9
1600	60.1
2000	58.2
2500	59.1
3150	61.4
4000	
5000	



Rating according to ISO 717-1
$D_{nT,w}(C;C_{tr})$ = 54 (-2; -6) dB

$C_{50\text{-}3150}$ = N/A dB; $C_{50\text{-}5000}$ = N/A dB; $C_{100\text{-}5000}$ = N/A dB;
$C_{tr,50\text{-}3150}$ = N/A dB; $C_{tr,50\text{-}5000}$ = N/A dB; $C_{tr,100\text{-}5000}$ = N/A dB;

Evaluation based on field measurement results obtained by an engineering method

No. of test report: OPP-092896N1AC
Name of test institute: Stroma Built Environment
Date: 29/09/2025
Signature: Matthew Jones

Standardized level difference measured in accordance with ISO 16283-1
Field measurements of airborne sound insulation between rooms

Client: Kier Construction - Liverpool

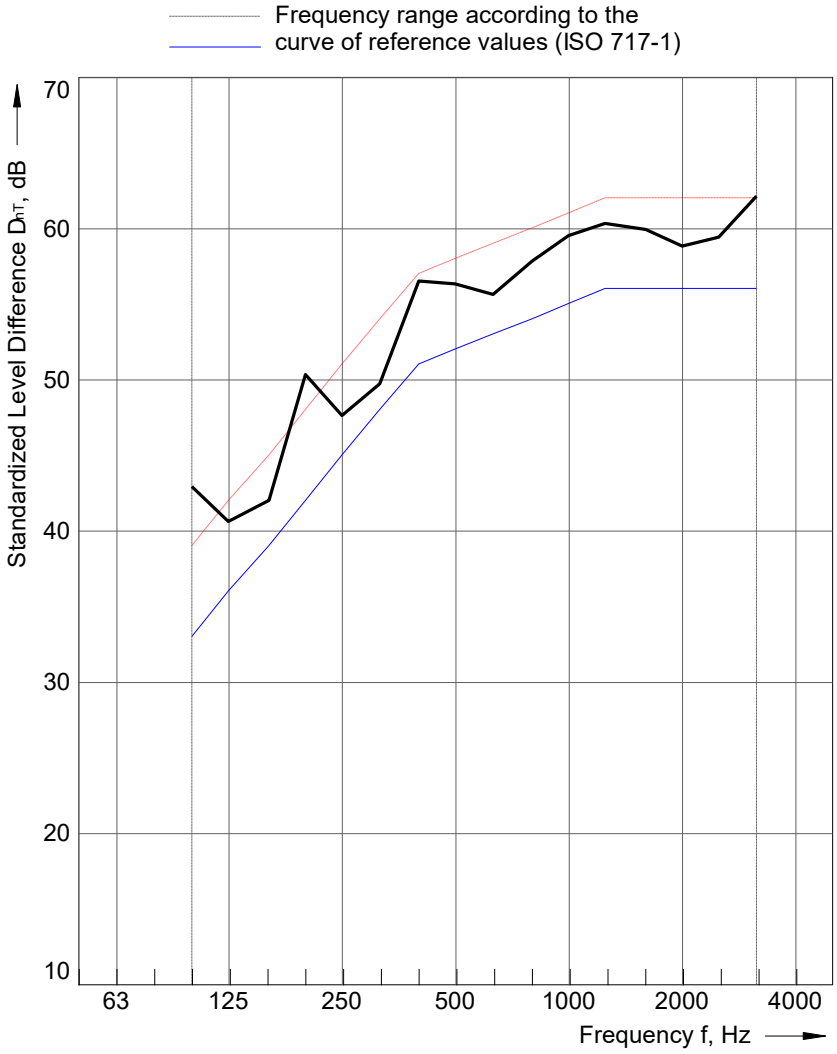
Date of test: 25/09/2025

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

Area of common partition : 3.80 m²
Receiving room volume: 27.00 m³
Source room volume: 157.00 m³

Frequency f Hz	D_{nT} 1/3 Octave dB
50	
63	
80	
100	42.9
125	40.6
160	42.0
200	50.3 B
250	47.6 B
315	49.7 B
400	56.5 B
500	56.3 B
630	55.6 B
800	57.8 B
1000	59.5 B
1250	60.3 B
1600	59.9 B
2000	58.8 B
2500	59.4 B
3150	62.1 B
4000	
5000	

B: D_{nT} >= value shown



Rating according to ISO 717-1
$D_{nT,w}(C;C_{tr})$ = 58 (-2; -5) dB

$C_{50\text{-}3150}$ = N/A dB; $C_{50\text{-}5000}$ = N/A dB; $C_{100\text{-}5000}$ = N/A dB;
$C_{tr,50\text{-}3150}$ = N/A dB; $C_{tr,50\text{-}5000}$ = N/A dB; $C_{tr,100\text{-}5000}$ = N/A dB;

Evaluation based on field measurement results obtained by an engineering method

No. of test report: OPP-092896N1AD
Name of test institute: Stroma Built Environment
Date: 29/09/2025
Signature: Matthew Jones

Standardized level difference measured in accordance with ISO 16283-1
Field measurements of airborne sound insulation between rooms

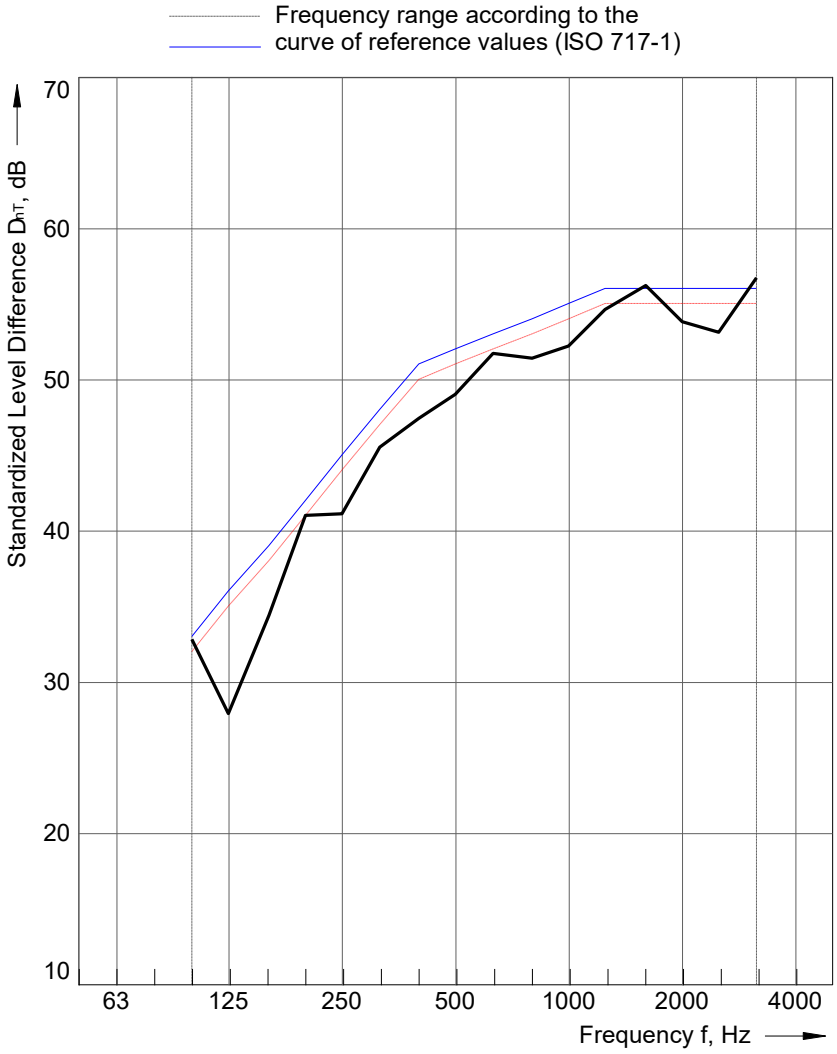
Client: Kier Construction - Liverpool

Date of test: 25/09/2025

Description and identification of the building construction and test arrangement, direction of measurement etc.: See report

Area of common partition : 9.20 m²
Receiving room volume: 41.00 m³
Source room volume: 27.00 m³

Frequency f Hz	D_{nT} 1/3 Octave dB
50	
63	
80	
100	32.8
125	27.9
160	34.4
200	41.0
250	41.1
315	45.5
400	47.4
500	49.0
630	51.7
800	51.4
1000	52.2
1250	54.6
1600	56.2
2000	53.8
2500	53.1
3150	56.7
4000	
5000	



Rating according to ISO 717-1
$D_{nT,w}(C;C_{tr})$ = 51 (-2; -7) dB

$C_{50\text{-}3150}$ = N/A dB; $C_{50\text{-}5000}$ = N/A dB; $C_{100\text{-}5000}$ = N/A dB;
$C_{tr,50\text{-}3150}$ = N/A dB; $C_{tr,50\text{-}5000}$ = N/A dB; $C_{tr,100\text{-}5000}$ = N/A dB;

Evaluation based on field measurement results obtained by an engineering method

No. of test report: OPP-092896N1AE
Name of test institute: Stroma Built Environment
Date: 29/09/2025
Signature: Matthew Jones

Standardized level difference measured in accordance with ISO 16283-1
Field measurements of airborne sound insulation between rooms

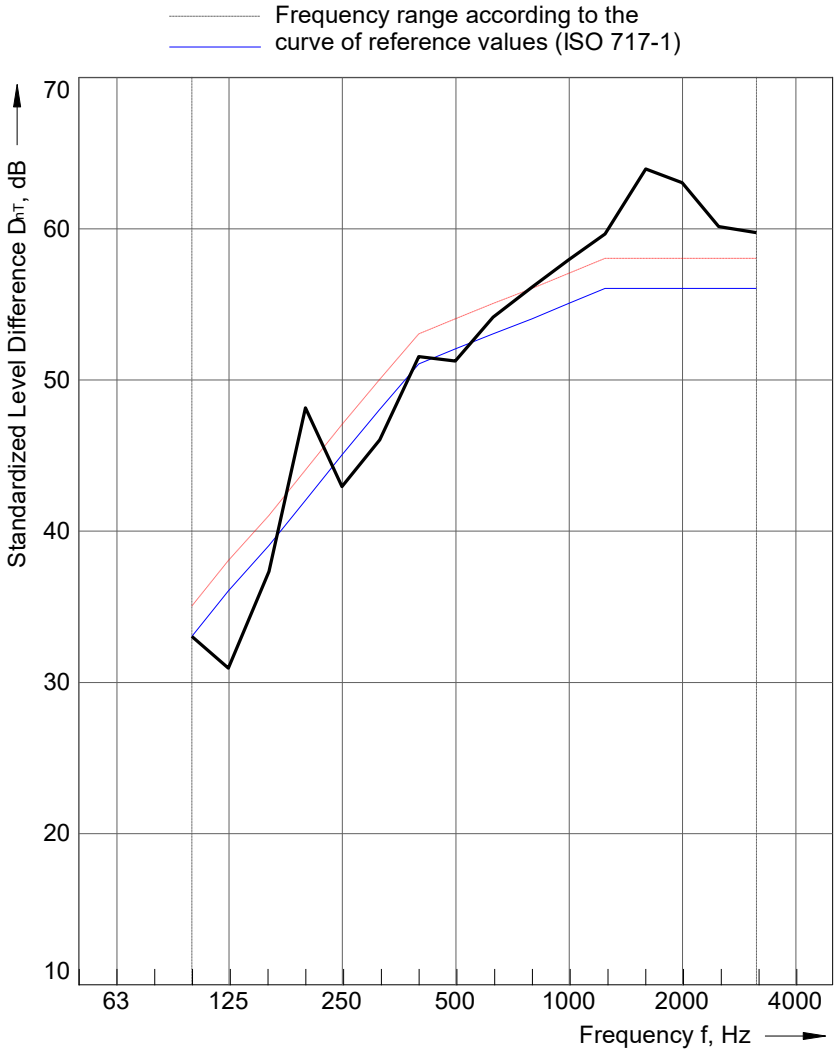
Client: Kier Construction - Liverpool

Date of test: 25/09/2025

Description and identification of the building construction and test arrangement, direction of measurement etc.: See report

Area of common partition : 7.70 m²
Receiving room volume: 27.00 m³
Source room volume: 157.00 m³

Frequency f Hz	D_{nT} 1/3 Octave dB
50	
63	
80	
100	33.0
125	30.9
160	37.3
200	48.1
250	42.9
315	46.0
400	51.5
500	51.2
630	54.1
800	56.1
1000	57.9
1250	59.6
1600	63.9
2000	63.0
2500	60.1
3150	59.7
4000	
5000	



Rating according to ISO 717-1
$D_{nT,w}(C;C_{tr})$ = 54 (-2; -7) dB

$C_{50\text{-}3150}$ = N/A dB; $C_{50\text{-}5000}$ = N/A dB; $C_{100\text{-}5000}$ = N/A dB;
$C_{tr,50\text{-}3150}$ = N/A dB; $C_{tr,50\text{-}5000}$ = N/A dB; $C_{tr,100\text{-}5000}$ = N/A dB;

Evaluation based on field measurement results obtained by an engineering method

No. of test report: OPP-092896N1AF
Name of test institute: Stroma Built Environment
Date: 29/09/2025
Signature: Matthew Jones

Standardized level difference measured in accordance with ISO 16283-1
Field measurements of airborne sound insulation between rooms

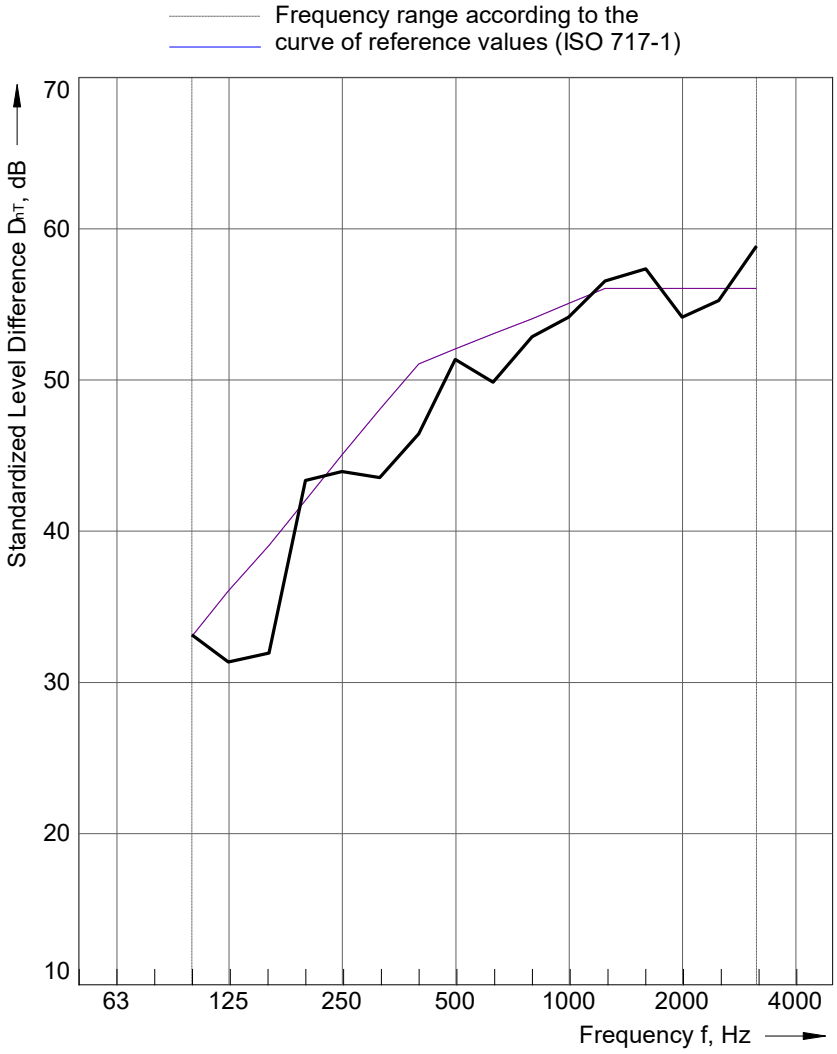
Client: Kier Construction - Liverpool

Date of test: 25/09/2025

Description and identification of the building construction and test arrangement, direction of measurement etc.: See report

Area of common partition : 7.80 m²
Receiving room volume: 167.00 m³
Source room volume: 167.00 m³

Frequency f Hz	D_{nT} 1/3 Octave dB
50	
63	
80	
100	33.1
125	31.3
160	31.9
200	43.3
250	43.9
315	43.5
400	46.4
500	51.3
630	49.8
800	52.8
1000	54.1
1250	56.5
1600	57.3
2000	54.1
2500	55.2
3150	58.8
4000	
5000	



Rating according to ISO 717-1
$D_{nT,w}(C;C_{tr})$ = 52 (-3; -7) dB

$C_{50\text{-}3150}$ = N/A dB; $C_{50\text{-}5000}$ = N/A dB; $C_{100\text{-}5000}$ = N/A dB;
$C_{tr,50\text{-}3150}$ = N/A dB; $C_{tr,50\text{-}5000}$ = N/A dB; $C_{tr,100\text{-}5000}$ = N/A dB;

Evaluation based on field measurement results obtained by an engineering method

No. of test report: OPP-092896N1AG
Name of test institute: Stroma Built Environment
Date: 29/09/2025
Signature: Matthew Jones

Standardized level difference measured in accordance with ISO 16283-1
Field measurements of airborne sound insulation between rooms

Client: Kier Construction - Liverpool

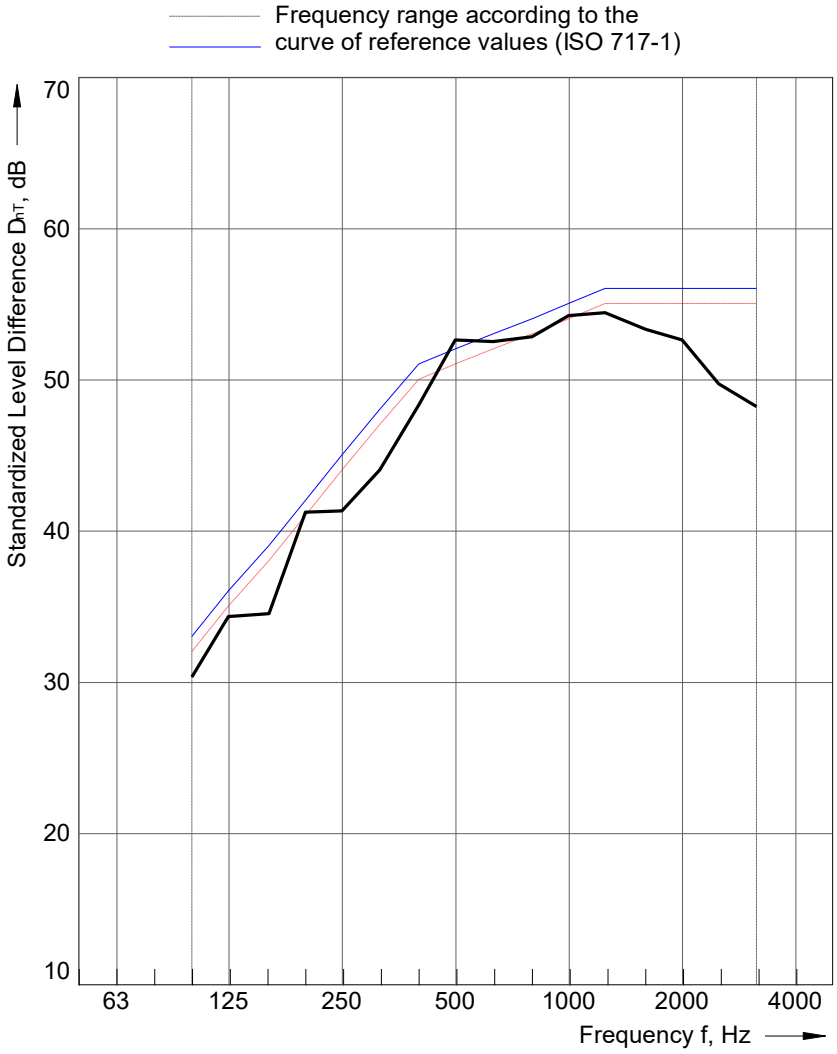
Date of test: 25/09/2025

Description and identification of the building construction and test arrangement, direction of measurement etc.: See report

Area of common partition : 7.30 m²
Receiving room volume: 27.00 m³
Source room volume: 27.00 m³

Frequency f Hz	D_{nT} 1/3 Octave dB
50	
63	
80	
100	30.3
125	34.3
160	34.5
200	41.2
250	41.3
315	44.0
400	48.3
500	52.6
630	52.5 B
800	52.8 B
1000	54.2 B
1250	54.4 B
1600	53.3 B
2000	52.6 B
2500	49.7
3150	48.2
4000	
5000	

B: D_{nT} >= value shown



Rating according to ISO 717-1
$D_{nT,w}(C;C_{tr})$ = 51 (-2; -6) dB

$C_{50\text{-}3150}$ = N/A dB; $C_{50\text{-}5000}$ = N/A dB; $C_{100\text{-}5000}$ = N/A dB;
$C_{tr,50\text{-}3150}$ = N/A dB; $C_{tr,50\text{-}5000}$ = N/A dB; $C_{tr,100\text{-}5000}$ = N/A dB;

Evaluation based on field measurement results obtained by an engineering method

No. of test report: OPP-092896N1AH
Name of test institute: Stroma Built Environment
Date: 29/09/2025
Signature: Matthew Jones

Standardized level difference measured in accordance with ISO 16283-1
Field measurements of airborne sound insulation between rooms

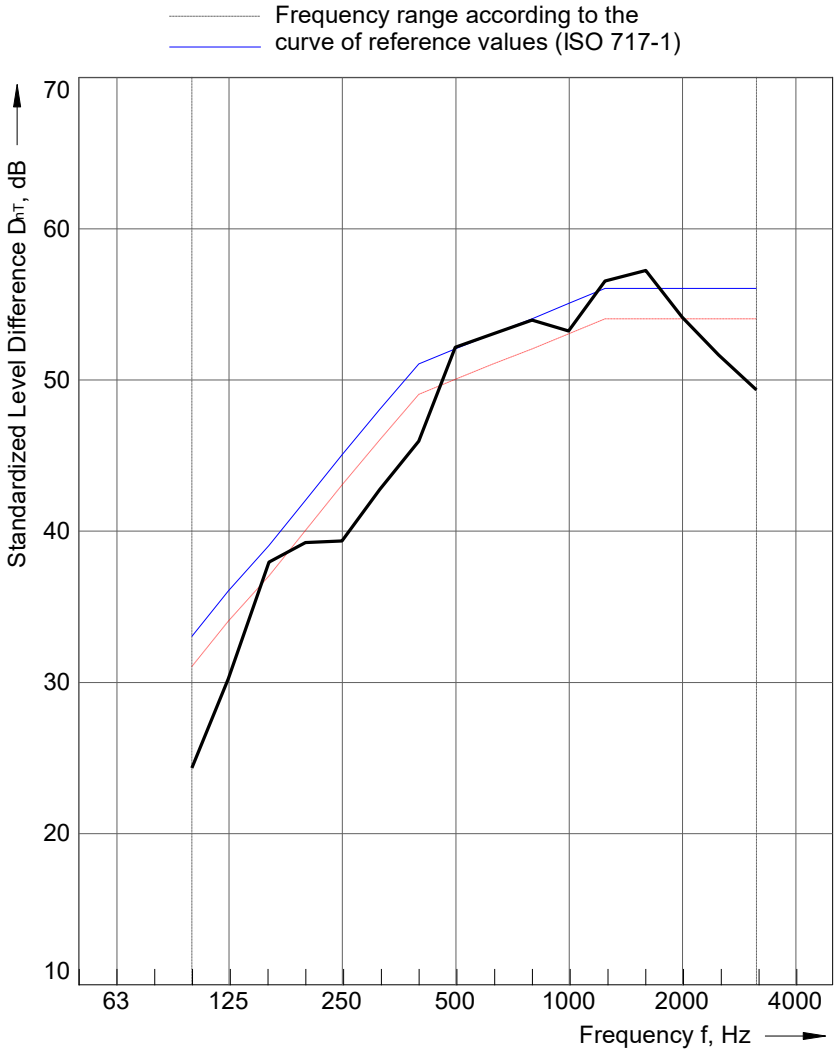
Client: Kier Construction - Liverpool

Date of test: 25/09/2025

Description and identification of the building construction and test arrangement, direction of measurement etc.: See report

Area of common partition : 7.30 m²
Receiving room volume: 27.00 m³
Source room volume: 27.00 m³

Frequency f Hz	D_{nT} 1/3 Octave dB
50	
63	
80	
100	24.3
125	30.2
160	37.9
200	39.2
250	39.3
315	42.7
400	45.9
500	52.1
630	53.0
800	53.9
1000	53.2
1250	56.5
1600	57.2
2000	54.1
2500	51.6
3150	49.3
4000	
5000	



Rating according to ISO 717-1
$D_{nT,w}(C;C_{tr})$ = 50 (-2; -8) dB

$C_{50\text{-}3150}$ = N/A dB; $C_{50\text{-}5000}$ = N/A dB; $C_{100\text{-}5000}$ = N/A dB;
$C_{tr,50\text{-}3150}$ = N/A dB; $C_{tr,50\text{-}5000}$ = N/A dB; $C_{tr,100\text{-}5000}$ = N/A dB;

Evaluation based on field measurement results obtained by an engineering method

No. of test report: OPP-092896N1AI
Name of test institute: Stroma Built Environment
Date: 29/09/2025
Signature: Matthew Jones

Standardized level difference measured in accordance with ISO 16283-1
Field measurements of airborne sound insulation between rooms

Client: Kier Construction - Liverpool

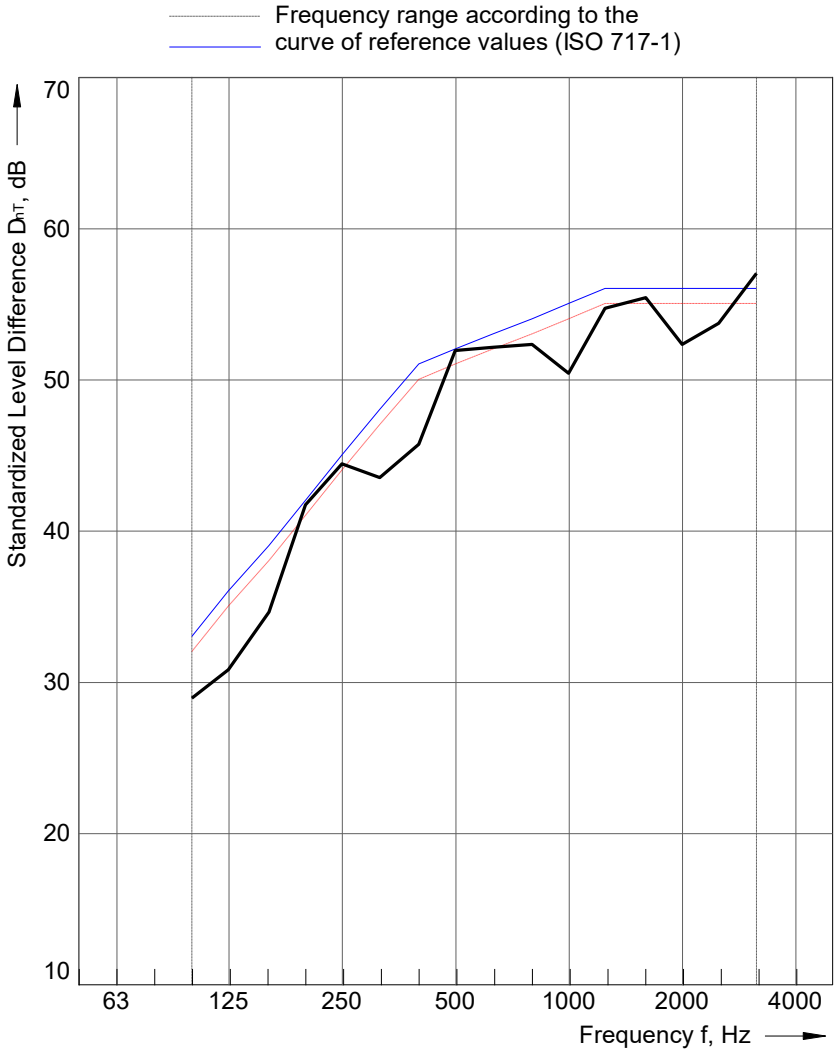
Date of test: 25/09/2025

Description and identification of the building construction and test arrangement, direction of measurement etc.: See report

Area of common partition : 21.00 m²
Receiving room volume: 167.00 m³
Source room volume: 167.00 m³

Frequency f Hz	D_{nT} 1/3 Octave dB
50	
63	
80	
100	28.9
125	30.8
160	34.6
200	41.7
250	44.4
315	43.5
400	45.7
500	51.9
630	52.1
800	52.3
1000	50.4 B
1250	54.7 B
1600	55.4 B
2000	52.3 B
2500	53.7 B
3150	57.0 B
4000	
5000	

B: D_{nT} >= value shown



Rating according to ISO 717-1
$D_{nT,w}(C;C_{tr})$ = 51 (-2; -7) dB

$C_{50\text{-}3150}$ = N/A dB; $C_{50\text{-}5000}$ = N/A dB; $C_{100\text{-}5000}$ = N/A dB;
$C_{tr,50\text{-}3150}$ = N/A dB; $C_{tr,50\text{-}5000}$ = N/A dB; $C_{tr,100\text{-}5000}$ = N/A dB;

Evaluation based on field measurement results obtained by an engineering method

No. of test report: OPP-092896N1AJ
Name of test institute: Stroma Built Environment
Date: 29/09/2025
Signature: Matthew Jones

Standardized level difference measured in accordance with ISO 16283-1
Field measurements of airborne sound insulation between rooms

Client: Kier Construction - Liverpool

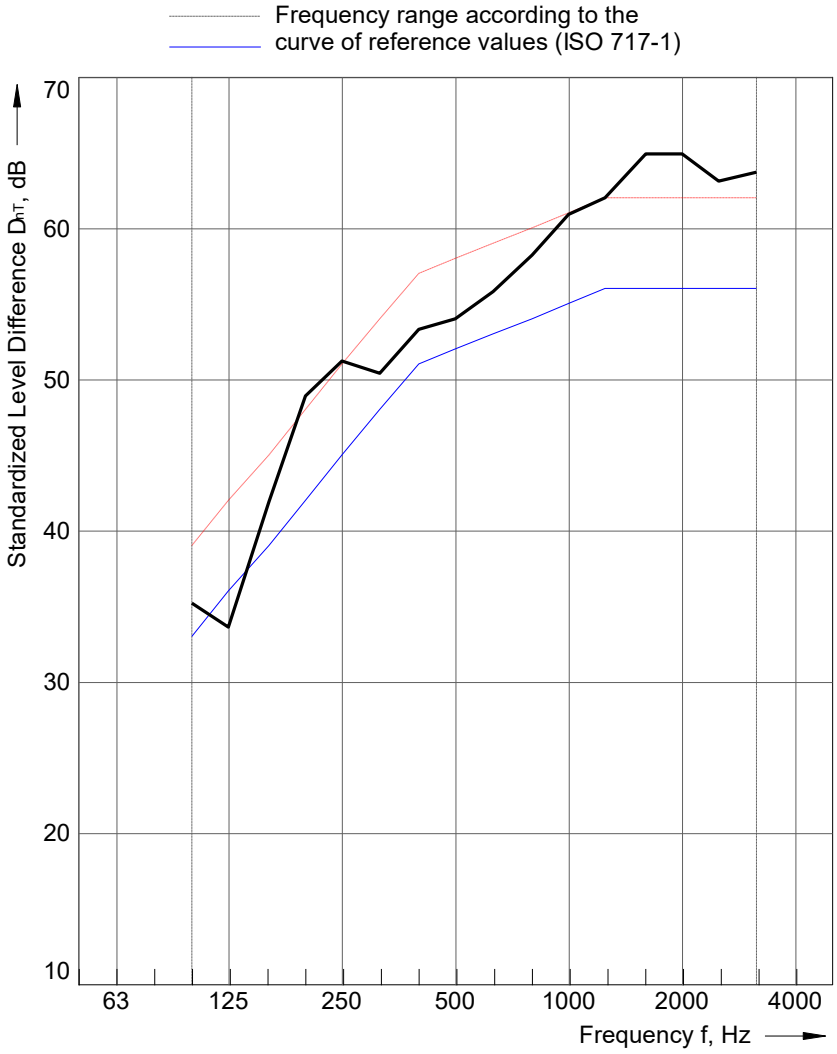
Date of test: 25/09/2025

Description and identification of the building construction and test arrangement, direction of measurement etc.: See report

Area of common partition : 6.75 m²
Receiving room volume: 41.00 m³
Source room volume: 32.00 m³

Frequency f Hz	D_{nT} 1/3 Octave dB
50	
63	
80	
100	35.2
125	33.6
160	41.9
200	48.9
250	51.2
315	50.4
400	53.3
500	54.0
630	55.8
800	58.2
1000	60.9 B
1250	62.0 B
1600	64.9 B
2000	64.9 B
2500	63.1 B
3150	63.7
4000	
5000	

B: D_{nT} >= value shown



Rating according to ISO 717-1
$D_{nT,w}(C;C_{tr})$ = 58 (-3; -8) dB

$C_{50\text{-}3150}$ = N/A dB; $C_{50\text{-}5000}$ = N/A dB; $C_{100\text{-}5000}$ = N/A dB;
$C_{tr,50\text{-}3150}$ = N/A dB; $C_{tr,50\text{-}5000}$ = N/A dB; $C_{tr,100\text{-}5000}$ = N/A dB;

Evaluation based on field measurement results obtained by an engineering method

No. of test report: OPP-092896N1AL
Name of test institute: Stroma Built Environment
Date: 29/09/2025
Signature: Matthew Jones

Standardized level difference measured in accordance with ISO 16283-1
Field measurements of airborne sound insulation between rooms

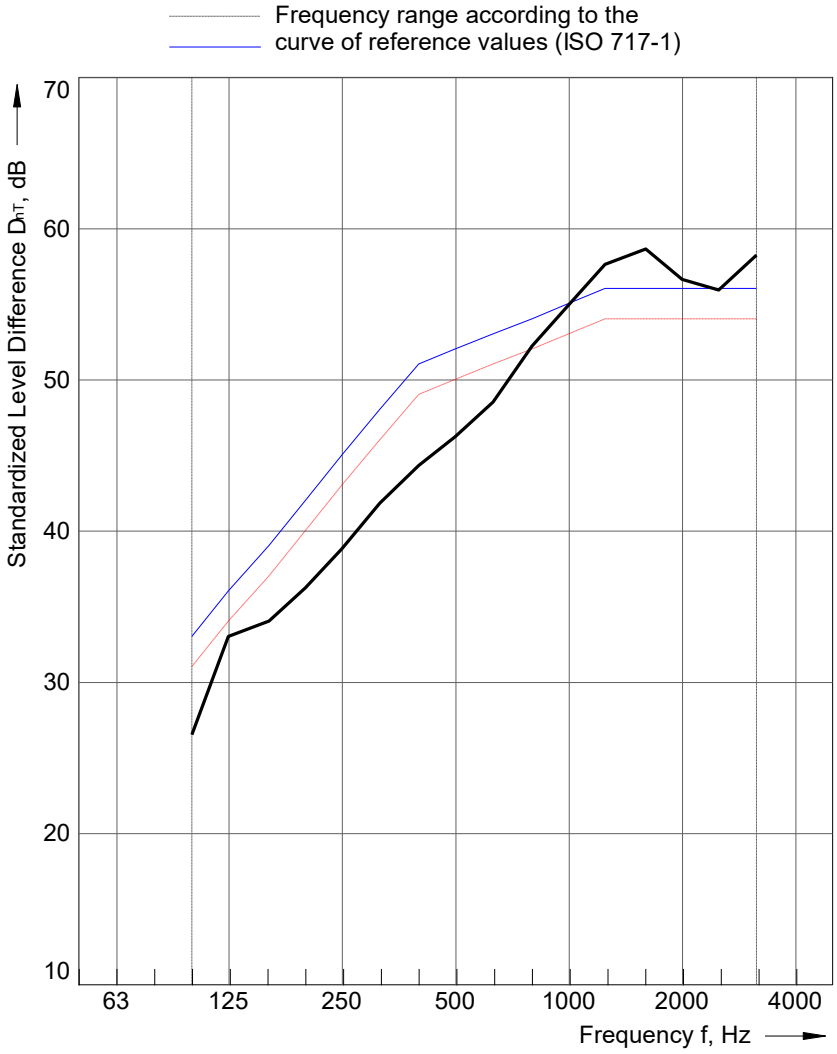
Client: Kier Construction - Liverpool

Date of test: 25/09/2025

Description and identification of the building construction and test arrangement, direction of measurement etc.: See report

Area of common partition : 11.00 m²
Receiving room volume: 41.00 m³
Source room volume: 41.00 m³

Frequency f Hz	D_{nT} 1/3 Octave dB
50	
63	
80	
100	26.5
125	33.0
160	34.0
200	36.2
250	38.8
315	41.8
400	44.3
500	46.2
630	48.5
800	52.2
1000	54.9
1250	57.6
1600	58.6
2000	56.6
2500	55.9
3150	58.2
4000	
5000	



Rating according to ISO 717-1
$D_{nT,w}(C;C_{tr})$ = 50 (-2; -7) dB

$C_{50\text{-}3150}$ = N/A dB; $C_{50\text{-}5000}$ = N/A dB; $C_{100\text{-}5000}$ = N/A dB;
$C_{tr,50\text{-}3150}$ = N/A dB; $C_{tr,50\text{-}5000}$ = N/A dB; $C_{tr,100\text{-}5000}$ = N/A dB;

Evaluation based on field measurement results obtained by an engineering method

No. of test report: OPP-092896N1AM
Name of test institute: Stroma Built Environment
Date: 29/09/2025
Signature: Matthew Jones

Standardized level difference measured in accordance with ISO 16283-1
Field measurements of airborne sound insulation between rooms

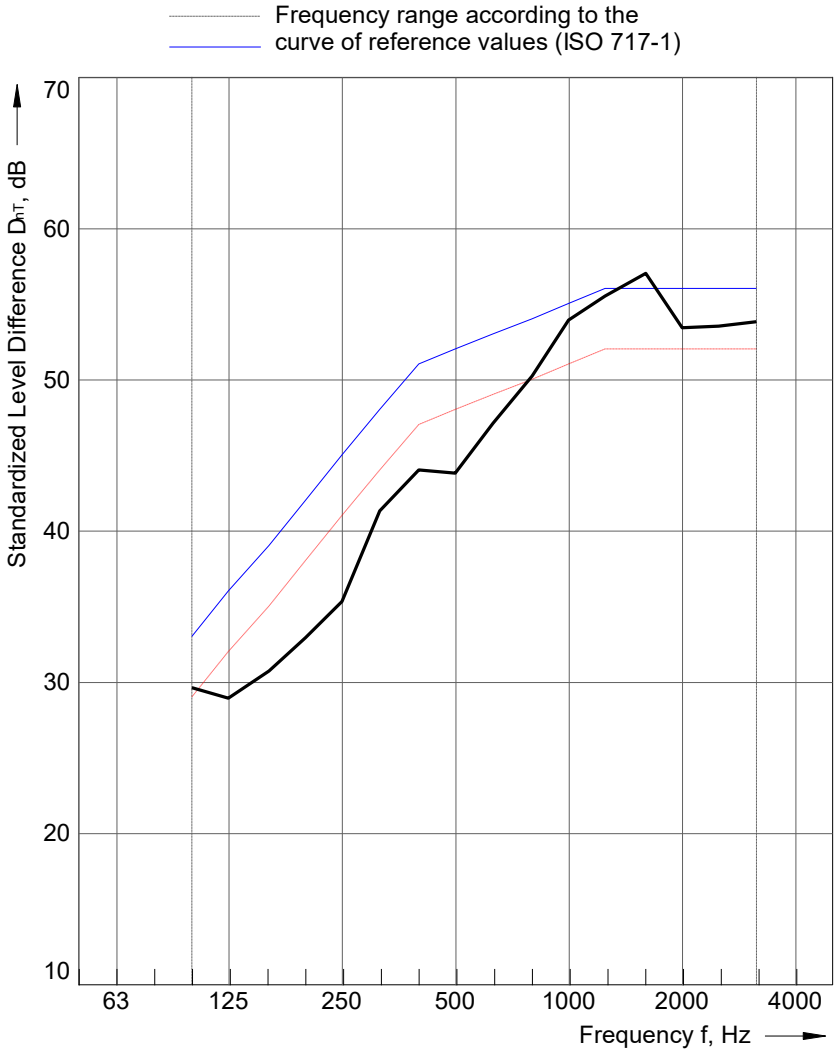
Client: Kier Construction - Liverpool

Date of test: 25/09/2025

Description and identification of the building construction and test arrangement, direction of measurement etc.: See report

Area of common partition : 11.00 m²
Receiving room volume: 41.00 m³
Source room volume: 149.00 m³

Frequency f Hz	D_{nT} 1/3 Octave dB
50	
63	
80	
100	29.6
125	28.9
160	30.7
200	32.9
250	35.3
315	41.3
400	44.0
500	43.8
630	47.1
800	50.2
1000	53.9
1250	55.5
1600	57.0
2000	53.4
2500	53.5
3150	53.8
4000	
5000	



Rating according to ISO 717-1
$D_{nT,w}(C;C_{tr})$ = 48 (-2; -7) dB

$C_{50\text{-}3150}$ = N/A dB; $C_{50\text{-}5000}$ = N/A dB; $C_{100\text{-}5000}$ = N/A dB;
$C_{tr,50\text{-}3150}$ = N/A dB; $C_{tr,50\text{-}5000}$ = N/A dB; $C_{tr,100\text{-}5000}$ = N/A dB;

Evaluation based on field measurement results obtained by an engineering method

No. of test report: OPP-092896N1AN
Name of test institute: Stroma Built Environment
Date: 29/09/2025
Signature: Matthew Jones

Standardized level difference measured in accordance with ISO 16283-1
Field measurements of airborne sound insulation between rooms

Client: Kier Construction - Liverpool

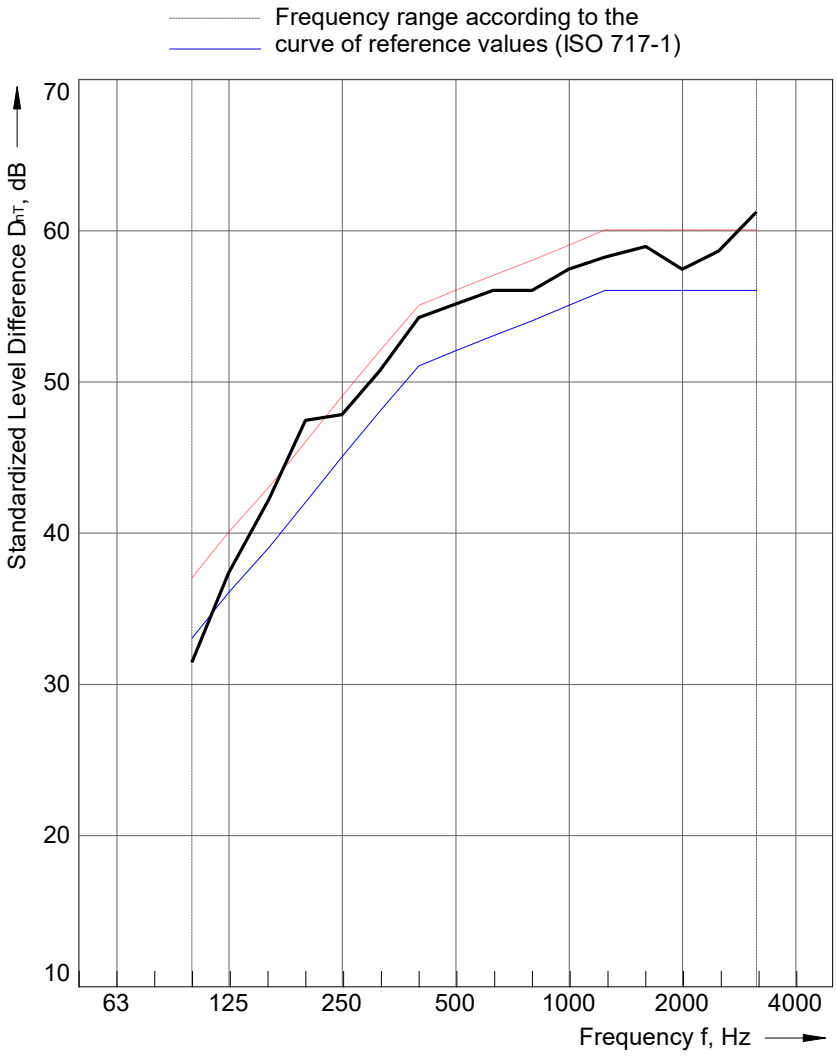
Date of test: 25/09/2025

Description and identification of the building construction and test arrangement, direction of measurement etc.: See report

Area of common partition : 6.75 m²
Receiving room volume: 149.00 m³
Source room volume: 149.00 m³

Frequency f Hz	D_{nT} 1/3 Octave dB
50	
63	
80	
100	31.4
125	37.3
160	42.2
200	47.4
250	47.8
315	50.7
400	54.2
500	55.1 B
630	56.0 B
800	56.0
1000	57.4 B
1250	58.2 B
1600	58.9 B
2000	57.4 B
2500	58.6 B
3150	61.2 B
4000	
5000	

B: D_{nT} >= value shown



Rating according to ISO 717-1
$D_{nT,w}(C;C_{tr})$ = 56 (-2; -7) dB

$C_{50\text{-}3150}$ = N/A dB; $C_{50\text{-}5000}$ = N/A dB; $C_{100\text{-}5000}$ = N/A dB;
$C_{tr,50\text{-}3150}$ = N/A dB; $C_{tr,50\text{-}5000}$ = N/A dB; $C_{tr,100\text{-}5000}$ = N/A dB;

Evaluation based on field measurement results obtained by an engineering method

No. of test report: OPP-092896N1AO
Name of test institute: Stroma Built Environment
Date: 29/09/2025
Signature: Matthew Jones

Standardized level difference measured in accordance with ISO 16283-1
Field measurements of airborne sound insulation between rooms

Client: Kier Construction - Liverpool

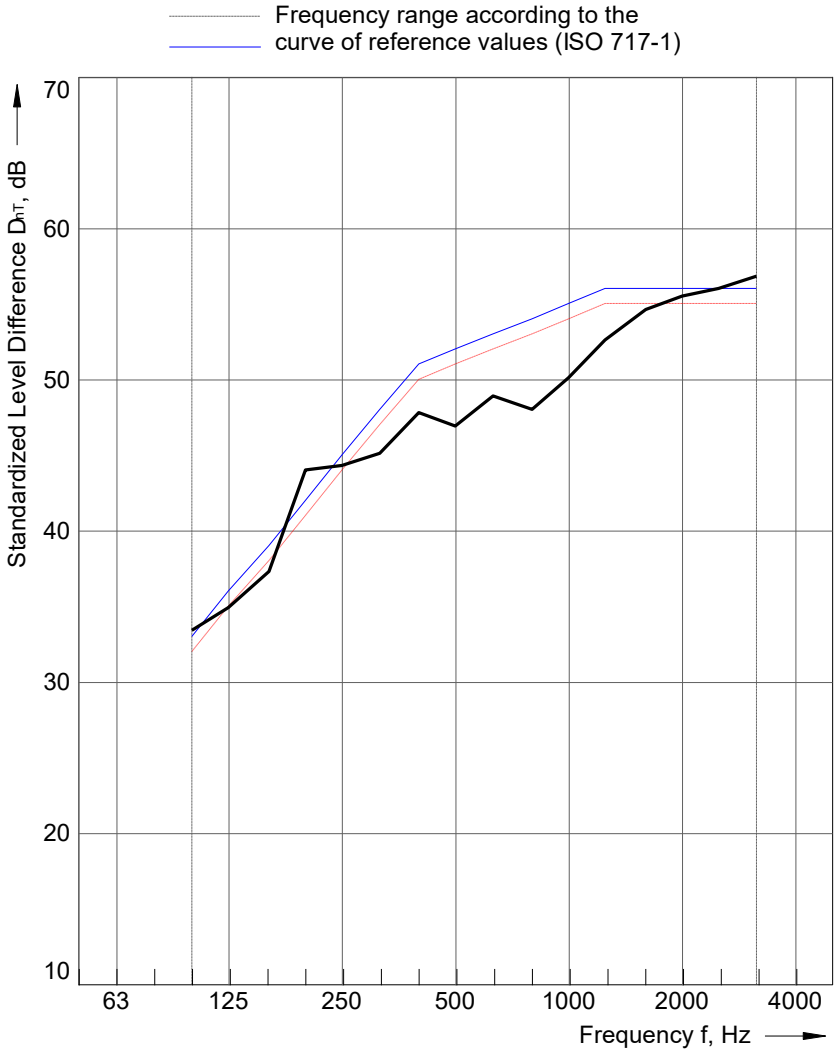
Date of test: 25/09/2025

Description and identification of the building construction and test arrangement, direction of measurement etc.: See report

Area of common partition : 10.00 m²
Receiving room volume: 27.00 m³
Source room volume: 149.00 m³

Frequency f Hz	D_{nT} 1/3 Octave dB
50	
63	
80	
100	33.4
125	34.9
160	37.3
200	44.0
250	44.3
315	45.1
400	47.8
500	46.9
630	48.9
800	48.0
1000	50.1
1250	52.6 B
1600	54.6 B
2000	55.5 B
2500	56.0 B
3150	56.8 B
4000	
5000	

B: D_{nT} >= value shown



Rating according to ISO 717-1
$D_{nT,w}(C;C_{tr})$ = 51 (-1; -4) dB

$C_{50\text{-}3150}$ = N/A dB; $C_{50\text{-}5000}$ = N/A dB; $C_{100\text{-}5000}$ = N/A dB;
$C_{tr,50\text{-}3150}$ = N/A dB; $C_{tr,50\text{-}5000}$ = N/A dB; $C_{tr,100\text{-}5000}$ = N/A dB;

Evaluation based on field measurement results obtained by an engineering method

No. of test report: OPP-092896N1AP
Name of test institute: Stroma Built Environment
Date: 29/09/2025
Signature: Matthew Jones

Standardized level difference measured in accordance with ISO 16283-1
Field measurements of airborne sound insulation between rooms

Client: Kier Construction - Liverpool

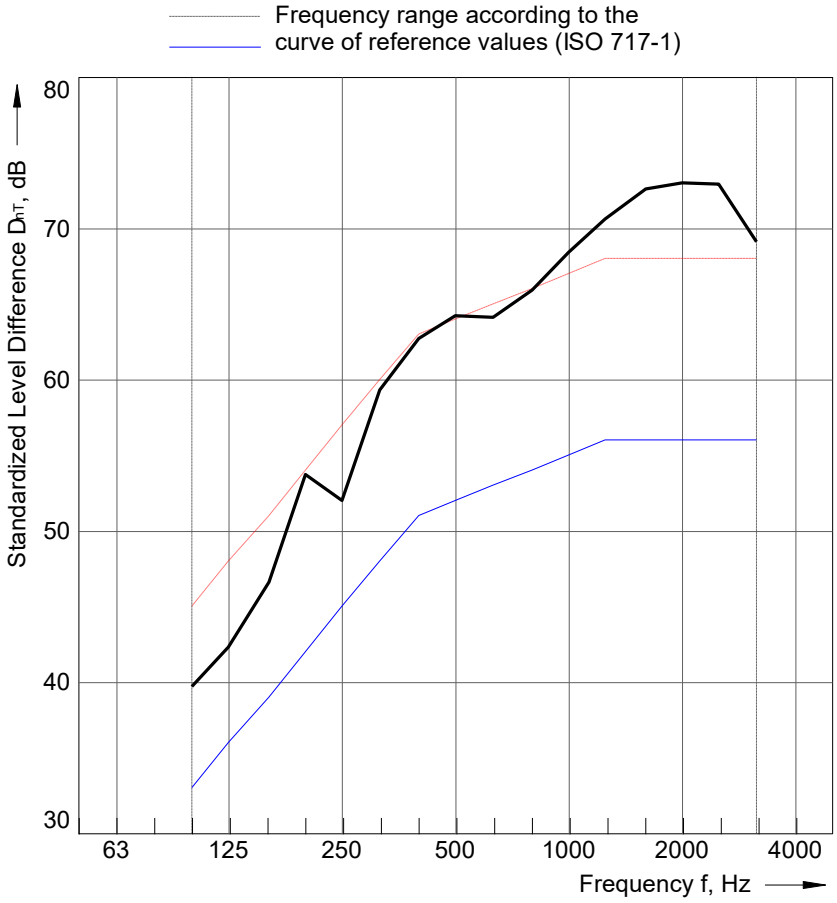
Date of test: 25/09/2025

Description and identification of the building construction and test arrangement, direction of measurement etc.: See report

Area of common partition : 5.50 m²
Receiving room volume: 27.00 m³
Source room volume: 27.00 m³

Frequency f Hz	D_{nT} 1/3 Octave dB
50	
63	
80	
100	39.7
125	42.3
160	46.6
200	53.7
250	52.0
315	59.3 B
400	62.7 B
500	64.2 B
630	64.1 B
800	65.9 B
1000	68.4 B
1250	70.6 B
1600	72.6 B
2000	73.0 B
2500	72.9 B
3150	69.1 B
4000	
5000	

B: D_{nT} >= value shown



Rating according to ISO 717-1
$D_{nT,w}(C;C_{tr})$ = 64 (-2; -8) dB

$C_{50\text{-}3150}$ = N/A dB; $C_{50\text{-}5000}$ = N/A dB; $C_{100\text{-}5000}$ = N/A dB;
$C_{tr,50\text{-}3150}$ = N/A dB; $C_{tr,50\text{-}5000}$ = N/A dB; $C_{tr,100\text{-}5000}$ = N/A dB;

Evaluation based on field measurement results obtained by an engineering method

No. of test report: OPP-092896N1AQ
Name of test institute: Stroma Built Environment
Date: 29/09/2025
Signature: Matthew Jones

Standardized level difference measured in accordance with ISO 16283-1
Field measurements of airborne sound insulation between rooms

Client: Kier Construction - Liverpool

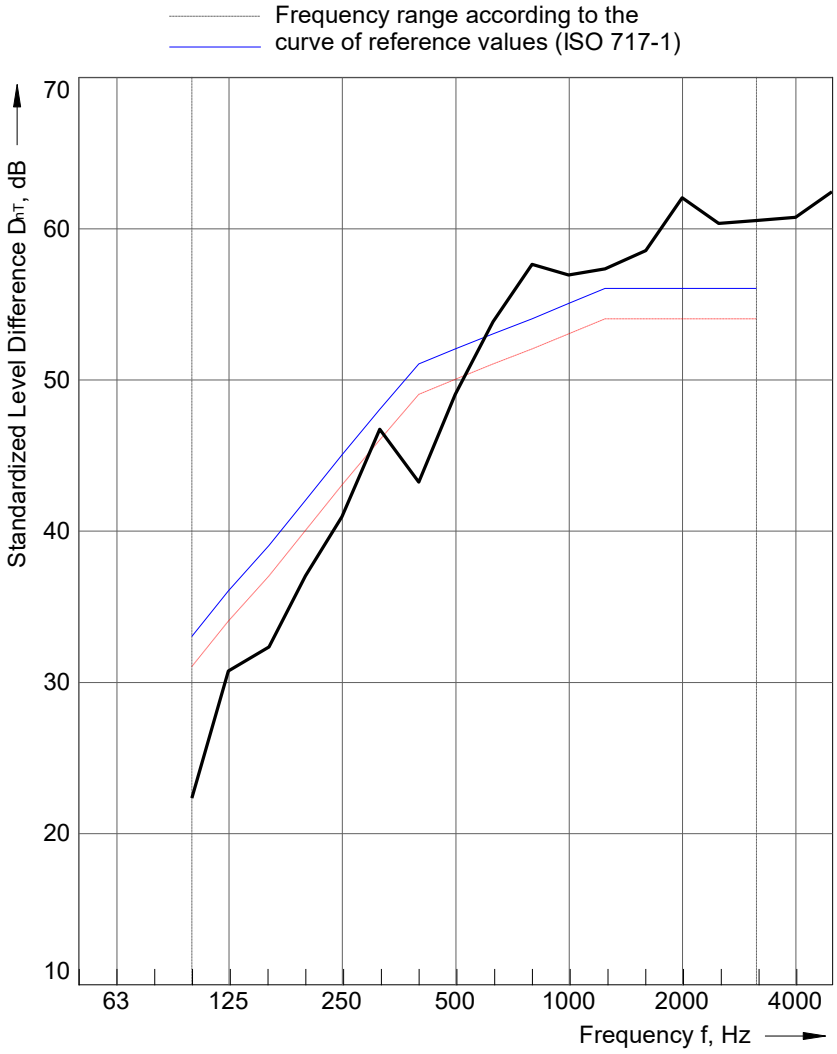
Date of test: 09/10/2025

Description and identification of the building construction and test arrangement, direction of measurement etc.: See report

Area of common partition : 6.75 m²
Receiving room volume: 27.00 m³
Source room volume: 27.00 m³

Frequency f Hz	D_{nT} 1/3 Octave dB
50	
63	
80	
100	22.3
125	30.7
160	32.3
200	37.0
250	40.9
315	46.7
400	43.2
500	49.0
630	53.8
800	57.6
1000	56.9
1250	57.3
1600	58.5 B
2000	62.0 B
2500	60.3 B
3150	60.5 B
4000	60.7 B
5000	62.4 B

B: D_{nT} >= value shown



Rating according to ISO 717-1
$D_{nT,w}(C;C_{tr})$ = 50 (-3;-10) dB

$C_{50\text{-}3150}$ = N/A dB; $C_{50\text{-}5000}$ = N/A dB; $C_{100\text{-}5000}$ = -2 dB;
$C_{tr,50\text{-}3150}$ = N/A dB; $C_{tr,50\text{-}5000}$ = N/A dB; $C_{tr,100\text{-}5000}$ = -10 dB;

Evaluation based on field measurement results obtained by an engineering method

No. of test report: OPP-092896N2AA
Name of test institute: Stroma Built Environment
Date: 10/10/2025
Signature: Matthew Jones

Standardized level difference measured in accordance with ISO 16283-1
Field measurements of airborne sound insulation between rooms

Client: Kier Construstion - Liverpool

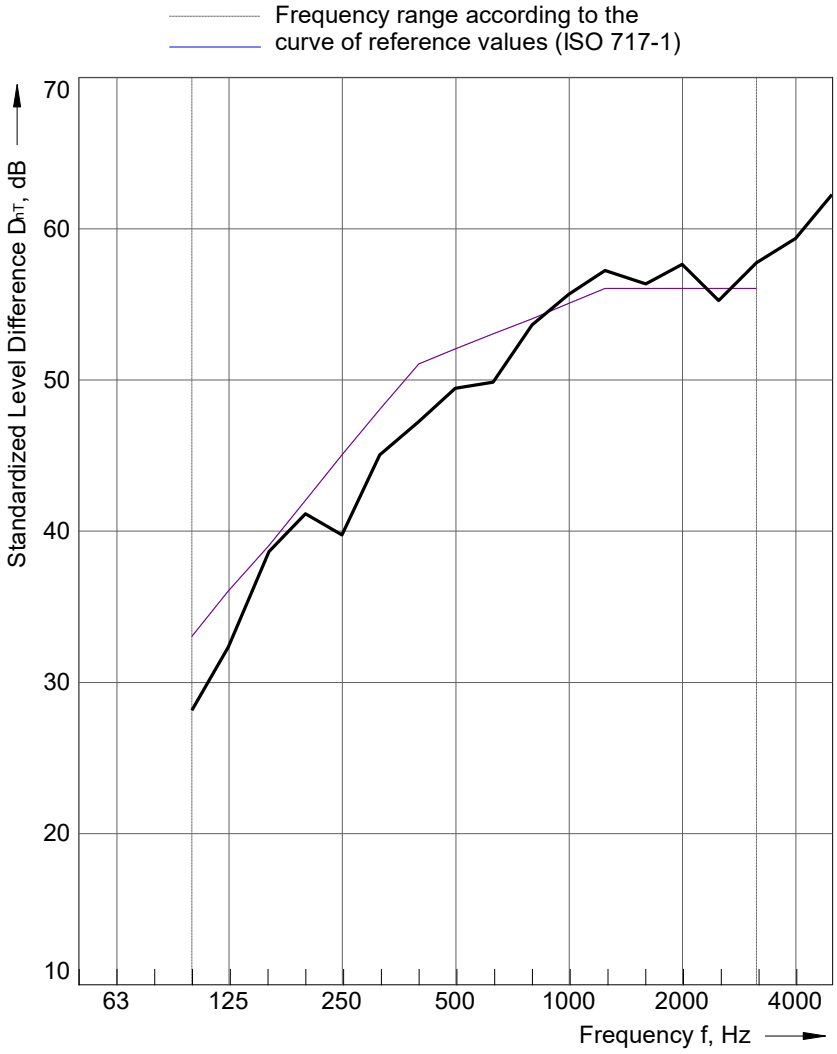
Date of test: 09/10/2025

Description and identification of the building construction and test arrangement, direction of measurement etc.: See report

Area of common partition : 6.75 m²
Receiving room volume: 27.00 m³
Source room volume: 27.00 m³

Frequency f Hz	D_{nT} 1/3 Octave dB
50	
63	
80	
100	28.1
125	32.3
160	38.6
200	41.1
250	39.7
315	45.0
400	47.2
500	49.4
630	49.8
800	53.6
1000	55.6 B
1250	57.2 B
1600	56.3 B
2000	57.6 B
2500	55.2 B
3150	57.7 B
4000	59.3 B
5000	62.2 B

B: D_{nT} >= value shown



Rating according to ISO 717-1
$D_{nT,w}(C;C_{tr})$ = 52 (-2; -7) dB

$C_{50\text{-}3150}$ = N/A dB; $C_{50\text{-}5000}$ = N/A dB; $C_{100\text{-}5000}$ = -1 dB;
$C_{tr,50\text{-}3150}$ = N/A dB; $C_{tr,50\text{-}5000}$ = N/A dB; $C_{tr,100\text{-}5000}$ = -7 dB;

Evaluation based on field measurement results obtained by an engineering method

No. of test report: OPP-092896N1AB
Name of test institute: Stroma Built Environment
Date: 10/10/2025
Signature: Matthew Jones

Standardized level difference measured in accordance with ISO 16283-1
Field measurements of airborne sound insulation between rooms

Client: Kier Construction - Liverpool

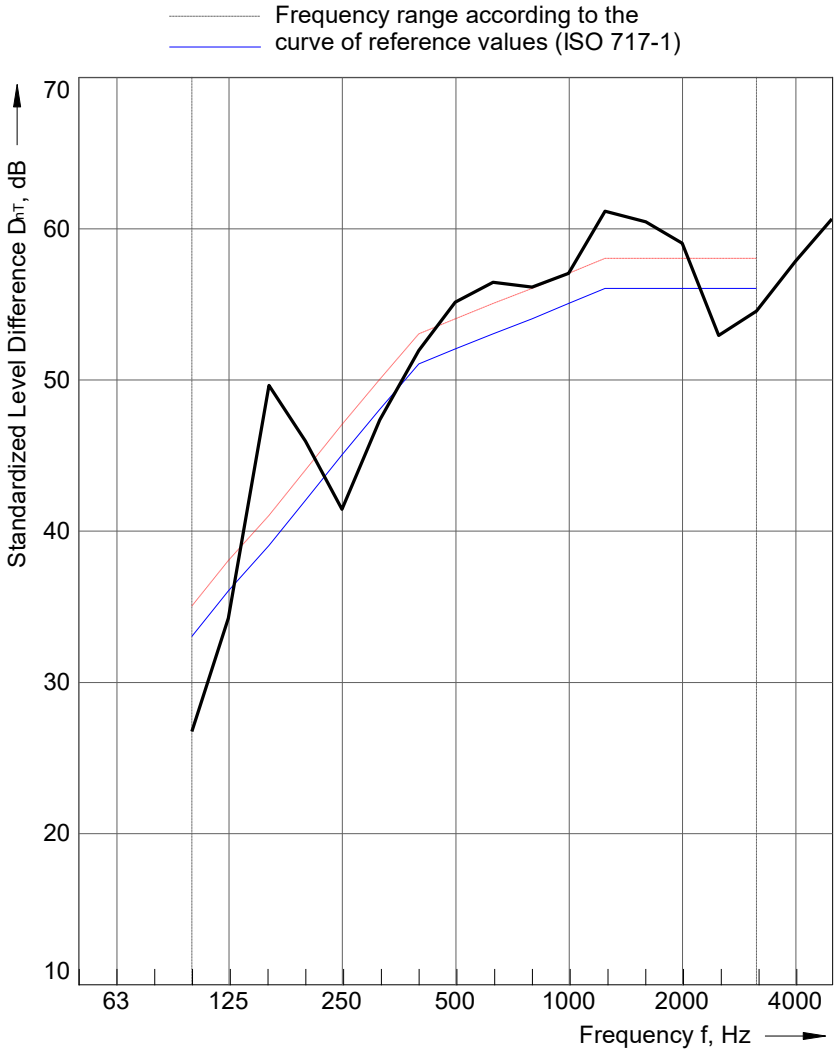
Date of test: 09/10/2025

Description and identification of the building construction and test arrangement, direction of measurement etc.: See report

Area of common partition : 7.30 m²
Receiving room volume: 27.00 m³
Source room volume: 27.00 m³

Frequency f Hz	D_{nT} 1/3 Octave dB
50	
63	
80	
100	26.7
125	34.2
160	49.6
200	45.9
250	41.4
315	47.3
400	51.9
500	55.1
630	56.4
800	56.1
1000	57.0
1250	61.1 B
1600	60.4 B
2000	59.0 B
2500	52.9
3150	54.5
4000	57.8 B
5000	60.6 B

B: D_{nT} >= value shown



Rating according to ISO 717-1
$D_{nT,w}(C;C_{tr})$ = 54 (-3; -9) dB

$C_{50\text{-}3150}$ = N/A dB; $C_{50\text{-}5000}$ = N/A dB; $C_{100\text{-}5000}$ = -2 dB;
$C_{tr,50\text{-}3150}$ = N/A dB; $C_{tr,50\text{-}5000}$ = N/A dB; $C_{tr,100\text{-}5000}$ = -9 dB;

Evaluation based on field measurement results obtained by an engineering method

No. of test report: OPP-092896N1AC
Name of test institute: Stroma Built Environment
Date: 10/10/2025
Signature: Matthew Jones

Standardized level difference measured in accordance with ISO 16283-1
Field measurements of airborne sound insulation between rooms

Client: Kier Construction - Liverpool

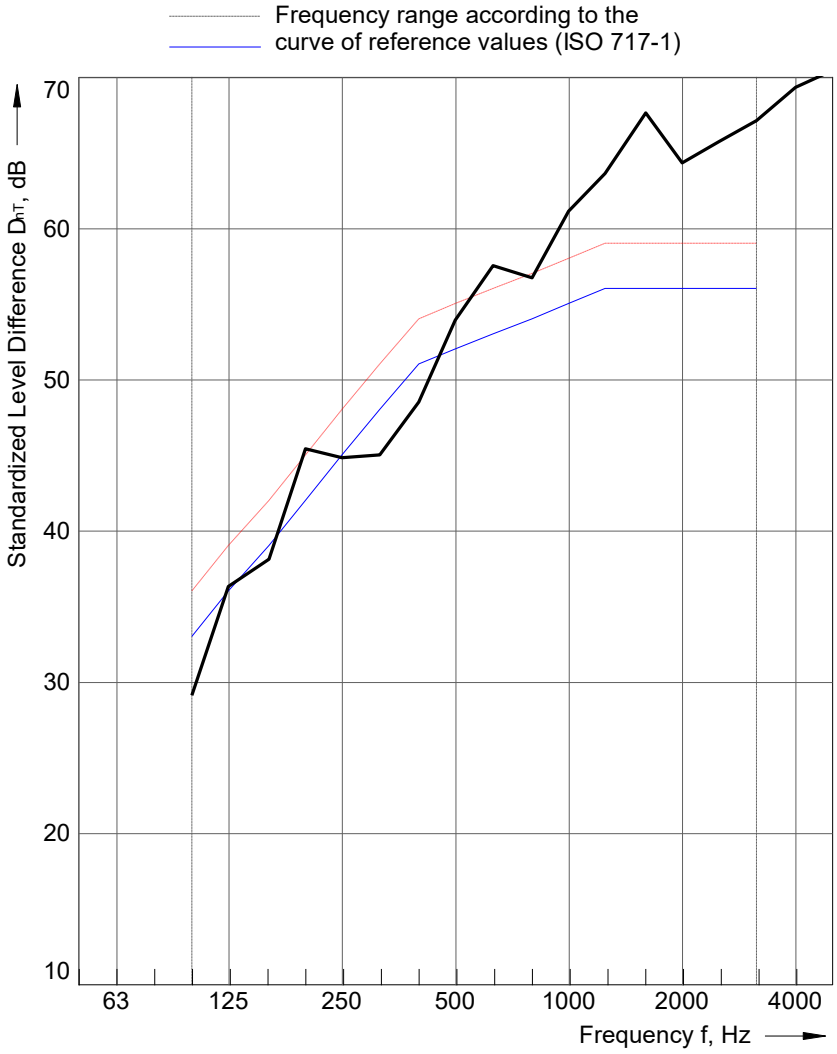
Date of test: 09/10/2025

Description and identification of the building construction and test arrangement, direction of measurement etc.: See report

Area of common partition : 22.00 m²
Receiving room volume: 167.00 m³
Source room volume: 61.00 m³

Frequency f Hz	D_{nT} 1/3 Octave dB
50	
63	
80	
100	29.1
125	36.3
160	38.1
200	45.4
250	44.8
315	45.0
400	48.5
500	53.9
630	57.5 B
800	56.7 B
1000	61.1 B
1250	63.6 B
1600	67.6 B
2000	64.3 B
2500	65.7 B
3150	67.1 B
4000	69.3 B
5000	70.4 B

B: D_{nT} >= value shown



Rating according to ISO 717-1
$D_{nT,w}(C;C_{tr})$ = 55 (-2; -8) dB

$C_{50\text{-}3150}$ = N/A dB; $C_{50\text{-}5000}$ = N/A dB; $C_{100\text{-}5000}$ = -1 dB;
$C_{tr,50\text{-}3150}$ = N/A dB; $C_{tr,50\text{-}5000}$ = N/A dB; $C_{tr,100\text{-}5000}$ = -8 dB;

Evaluation based on field measurement results obtained by an engineering method

No. of test report: OPP-092896N1AD
Name of test institute: Stroma Built Environment
Date: 10/10/2025
Signature: Matthew Jones

End of Report