Sustainable Acoustics

Rydon

BACTON LOW RISE
BLOCK C

Pre-completion Sound Insulation Test Report

Report no.: 13-0069-0 R05
Test no.: 11250642

♦ PROTECT ♦ ENHANCE ♦ CONNECT

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BACTON LOW RISE – BLOCK C

Report No.:	13-0069-0 R05
Date:	19 January 2017

ADvANCE

Task no.:	50642
Task password:	EAGMAC

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1 INTRODUCTION

This report is an ANC Registered Report with the unique registration number 50642. The report provides an assessment of the sound insulation of separating partitions at Block C of the Bacton Low Rise development at Vicar's Road, Gospel Oak, London NW5 4 (full postcode not yet assigned), in accordance with the requirements of the Building Regulations 2010, Approved Document E 2003.

The properties at Block C of the Bacton Low Rise development are purpose built flats.

The testing was undertaken on 12th January 2017 by Chris Matheson, Jim Smith, Sara Rubio and Peter Turner of Sustainable Acoustics Ltd, 5 Charlecote Mews, Staple Gardens, Winchester, Hampshire, SO23 8SR for Rydon, Rydon House, Station Road, Forest Row, East Sussex, RH18 5DW. Sustainable Acoustics Ltd is registered with the Association of Noise Consultants scheme for sound insulating testing and was an active member at the time of testing. Chris Matheson and Jim Smith are Approved Persons and were registered testers within the organisation at the time of testing. The Organisation Registration Number for Sustainable Acoustics Ltd is 112.

2 TEST PROCEDURE

The tests shown in this report have been carried out in full accordance with the procedures specified in Annex B of Approved Document E to the Building Regulations 2010. Where kitchen areas had units fitted, the cupboard doors were opened as specified in section B2.17 of Approved Document E.

2.1 Site conditions and observations

Ambient noise levels in rooms were dominated by construction works on the outside of the building, which affected tests on the lower floors of the building, and by passing trains, which were more noticeable on the upper floors of the building. Trains were intermittent, and therefore measurements could be taken without influence of the train noise. All rooms were tested in an empty and unfurnished condition, but it is also noted that the floor finish had been installed, which was an engineered oak wood flooring on a resilient layer.

2.2 Test constructions

The detailed test partition constructions for each test are shown on the detailed test results at Appendix 4.

Separating floors comprise engineered oak flooring on resilient layer on 250mm concrete slab, with ceiling below comprising one layer of 12.5mm fireline plasterboard on MF hangers creating 250mm void with 50mm mineral wool in void.

Separating walls comprise twin 70mm stud frame with two layers 12.5mm plasterboard of minimum density 20kg/m^2 on either side, and additional layer of 18mm support ply within frame. 50mm mineral wool within each stud frame and 100mm mineral wool in void between two stud frames.

External flanking walls comprise facing brickwork, rigid thermal insulation and structural concrete wall, with single layer plasterboard lining.

2.3 Airborne sound insulation

Airborne sound insulation tests were undertaken in full accordance with the procedure specified in the British Standard BS EN ISO 140-4: 1998, *Acoustics – Measurement of sound insulation in buildings and of building elements, Part 4: Field measurements of airborne sound insulation between rooms* in 20 room pairs, as summarised in Table 1 below. Floor plans of the source and receiver rooms are shown in Figures 1 to 6.

Source room details			Receiver room details			Separating partition
Room		Volume	Room		Volume	
3.5	3F Flat 11, living	55.2 m^3	2.5	2F Flat 7, living	55.2 m^3	Floor
3.7	3F Flat 10, bedroom	28.8 m^3	2.7	2F Flat 6, bedroom	28.8 m^3	Floor
2.3	2F Flat 8, bedroom	28.8 m^3	1.2	1F Flat 4, bedroom	28.8 m^3	Floor
2.1	2F Flat 9, bedroom	28.1 m^3	1.1	1F Flat 5, bedroom	28.1 m^3	Floor
2.8	2F Flat 6, living	28.8 m^3	1.3	1F Flat 3, living	28.8 m^3	Floor
6.1	6F Flat 20, bedroom	27.8 m^3	5.3	5F Flat 18, bedroom	25.7 m^3	Floor
5.1	5F Flat 19, living	54.5 m^3	4.6	4F Flat 15, living	54.5 m^3	Floor
4.4	4F Flat 16, living	64.1 m^3	3.4	3F Flat 12, living	64.1 m^3	Floor
4.3	4F Flat 16, bedroom	31.2 m^3	3.3	3F Flat 12, bedroom	31.2 m^3	Floor
4.1	4F Flat 17, living	64.6 m^3	3.1	3F Flat 13, living	64.6 m^3	Floor
3.2	3F Flat 12, bedroom	28.8 m^3	3.2	3F Flat 13, bedroom	28.1 m^3	Wall
3.1	3F Flat 12, living	64.8 m^3	3.5	3F Flat 11, living	55.2 m^3	Wall
3.6	3F Flat 11, bedroom	32.9 m^3	3.7	3F Flat 10, bedroom	28.8 m^3	Wall
2.6	2F Flat 7, bedroom	32.9 m^3	2.7	2F Flat 6, bedroom	28.8 m^3	Wall
2.4	2F Flat 8, living	64.8 m^3	2.5	2F Flat 7, living	55.2 m^3	Wall
2.2	2F Flat 8, bedroom	28.8 m^3	2.1	2F Flat 9, bedroom	28.1 m^3	Wall
5.2	5F Flat 19, bedroom	35.8 m^3	5.3	5F Flat 18, bedroom	25.7 m^3	Wall
4.4	4F Flat 16, living	64.1 m^3	4.6	4F Flat 15, living	54.5 m^3	Wall
4.3	4F Flat 16, bedroom	31.2 m^3	4.2	4F Flat 17, bedroom	29.52 m^3	Wall
4.6	4F Flat 15, bedroom	35.0 m^3	4.7	4F Flat 14, bedroom	25.92 m^3	Wall

Table 1: Room pairs tested (airborne sound insulation)

The test equipment used is specified at Appendix 1 of this report. The source was located consecutively at two positions in the source rooms and the spatial energy average of the sound pressure level determined over a measurement period of 40 s for each source position, using a moving microphone technique at two locations within the room. The spatial energy average in the receiver room was also determined over a measurement period of 40 s for each source position, using a moving microphone technique at two locations within the room. Representative ambient

noise levels, with no test signal, were measured in each receiver room. Sound pressure level measurements were recorded in each ⅓-octave band in the frequency range 100 Hz–3150 Hz, with a measurement period of 40 s over two moving microphone measurements at each receiver measurement location.

2.4 Impact sound insulation

Impact sound insulation tests were undertaken in full accordance with the procedure specified in the British Standard BS EN ISO 140-7: 1998, *Acoustics – Measurement of sound insulation in buildings and of building elements, Part 7: Field measurements of impact sound insulation of floors* in 10 room pairs, as summarised in Table 2 below. Floor plans of the source and receiver rooms are shown in Figures 1 to 6.

Source room details			Receiver room details		
Room		Volume	Room		Volume
3.5	3F Flat 11, living	55.2 m^3	2.5	2F Flat 7, living	55.2 m^3
3.7	3F Flat 10, bedroom	28.8 m^3	2.7	2F Flat 6, bedroom	28.8 m^3
2.3	2F Flat 8, bedroom	28.8 m^3	1.2	1F Flat 4, bedroom	28.8 m^3
2.1	2F Flat 9, bedroom	28.1 m^3	1.1	1F Flat 5, bedroom	28.1 m^3
2.8	2F Flat 6, living	28.8 m^3	1.3	1F Flat 3, living	28.8 m^3
6.1	6F Flat 20, bedroom	27.8 m^3	5.3	5F Flat 18, bedroom	25.7 m^3
5.1	5F Flat 19, living	54.5 m^3	4.6	4F Flat 15, living	54.5 m^3
4.4	4F Flat 16, living	64.1 m^3	3.4	3F Flat 12, living	64.1 m^3
4.3	4F Flat 16, bedroom	31.2 m^3	3.3	3F Flat 12, bedroom	31.2 m^3
4.1	4F Flat 17, living	64.6 m^3	3.1	3F Flat 13, living	64.6 m^3

Table 2: Room pairs tested (impact sound insulation)

The test equipment used is specified at Appendix 1 of this report. The tapping machine was located consecutively at four positions in the source rooms and the spatial energy average of the sound pressure level determined over a measurement period of 40 s for each of the tapping machine positions, using a moving microphone technique at two locations within the room. Representative ambient noise levels, with no test signal, were measured in each receiver room. Sound pressure level measurements were recorded in each ⅓-octave band in the frequency range 100 Hz–3150 Hz, with a measurement period of 40 s over two moving microphone measurements at each receiver measurement location.

Due to an error storing the measurements in the sound level meter, only 20 seconds of background was recorded for two of the tests, between flat 16 living to flat 12 living, and between flat 17 living to flat 13 living.

2.5 Reverberation time

The reverberation time in each receiver room was determined from a series of six measurements at two source positions and three microphone positions, with two readings at each microphone

position. The decay signal was generated by instantaneously switching off a continuous white noise source. The reverberation time for each position was calculated from the decay measurements using the least squares method and the average reverberation time at each frequency band determined for the room using the Rion type NX-28BA Building Acoustics Card.

3 ASSESSMENT

3.1 Airborne sound insulation

The level differences in each ⅓-octave band for each room pair, corrected as appropriate for background noise, were converted to the standardised level difference and the single figure weighted standardised level difference $D_{nT,w}$ determined in accordance with the definitions given in the British Standard BS EN ISO 717-1: 1997, *Acoustics – Rating of sound insulation in buildings and of building elements, Part 1: Airborne sound insulation*. A number of the measured noise levels used in the calculation were less than 6 dB above the measured ambient noise level and therefore not above the limit for measurement, as shown in the table in Appendix 3. Generally the reason for measured noise levels in receiver rooms being within 6 dB of the ambient noise levels was due to the high performing partition which meant that the source noise levels was low in the receiver rooms.

The spectrum adaptation terms C (A-weighted pink noise) and C_{tr} (A-weighted urban traffic noise) were calculated in accordance with the Standard and the $D_{nT,w} + C_{tr}$ evaluated for comparison with the requirements of the Building Regulations 2010, Approved Document E 2003 (as revised in 2010). The results for each room pair in tabular and graphical form are presented in Appendix 4 and summarised in Table 3 below:

ANC Test number	Source room	Receiver room	$D_{nT,w}+C_{tr}$, dB		Pass/Fail
			Actual	Criterion	
1125064201	3F Flat 11, living	2F Flat 7, living	55	45 (+ 5dB CODE)	Pass
1125064202	3F Flat 10, bedroom	2F Flat 6, bedroom	60	45 (+ 5dB CODE)	Pass
1125064203	2F Flat 8, bedroom	1F Flat 4, bedroom	67	45 (+ 5dB CODE)	Pass
1125064204	2F Flat 9, bedroom	1F Flat 5, bedroom	67	45 (+ 5dB CODE)	Pass
1125064205	2F Flat 6, living	1F Flat 3, living	64	45 (+ 5dB CODE)	Pass
1125064206	6F Flat 20, bedroom	5F Flat 18, bedroom	62	45 (+ 5dB CODE)	Pass
1125064207	5F Flat 19, living	4F Flat 15, living	60	45 (+ 5dB CODE)	Pass
1125064208	4F Flat 16, living	3F Flat 12, living	57	45 (+ 5dB CODE)	Pass
1125064209	4F Flat 16, bedroom	3F Flat 12, bedroom	61	45 (+ 5dB CODE)	Pass
1125064210	4F Flat 17, living	3F Flat 13, living	56	45 (+ 5dB CODE)	Pass
1125064211	3F Flat 12, bedroom	3F Flat 13, bedroom	62	45 (+ 5dB CODE)	Pass
1125064212	3F Flat 12, living	3F Flat 11, living	55	45 (+ 5dB CODE)	Pass
1125064213	3F Flat 11, bedroom	3F Flat 10, bedroom	56	45 (+ 5dB CODE)	Pass
1125064214	2F Flat 7, bedroom	2F Flat 6, bedroom	63	45 (+ 5dB CODE)	Pass
1125064215	2F Flat 8, living	2F Flat 7, living	59	45 (+ 5dB CODE)	Pass
1125064216	2F Flat 8, bedroom	2F Flat 9, bedroom	60	45 (+ 5dB CODE)	Pass
1125064217	5F Flat 19, bedroom	5F Flat 18, bedroom	55	45 (+ 5dB CODE)	Pass
1125064218	4F Flat 16, living	4F Flat 15, living	57	45 (+ 5dB CODE)	Pass
1125064219	4F Flat 16, bedroom	4F Flat 17, bedroom	60	45 (+ 5dB CODE)	Pass
1125064220	4F Flat 15, bedroom	4F Flat 14, bedroom	55	45 (+ 5dB CODE)	Pass

Table 3: Summary of results (airborne sound insulation)

3.2 Impact sound insulation

The impact sound pressure levels in each ⅓-octave band for each receiver room, corrected for background noise in accordance with the procedure given in BS EN ISO 140-7: 1998, were converted to the standardised impact sound pressure level and the single figure weighted standardised impact sound pressure level $L'_{nT,w}$ determined in accordance with the definitions given in the British Standard BS EN ISO 717-2: 1997, *Acoustics – Rating of sound insulation in buildings and of building elements, Part 2: Impact sound insulation*. A number of the measured noise levels used in the calculation were less than 6 dB above the measured ambient noise level and therefore not above the limit for measurement, as shown in the table in Appendix 3. Generally the reason for measured noise levels in receiver rooms being within 6 dB of the ambient noise levels was due to the high performing partition which meant that the source noise levels was low in the receiver rooms.

The $L'_{nT,w}$ values were then compared with the requirements of the Building Regulations 2010, Approved Document E 2003 (as revised in 2010). The results for each room pair in tabular and graphical form are presented in Appendix 4 and summarised in Table 4 below:

ANC Test number	Source room	Receiver room	$L'_{nT,w}$, dB		Pass/Fail
			Actual	Criterion	
1125064221	3F Flat 11, living	2F Flat 7, living	40	62 (-5 dB CODE)	Pass
1125064222	3F Flat 10, bedroom	2F Flat 6, bedroom	40	62 (-5 dB CODE)	Pass
1125064223	2F Flat 8, bedroom	1F Flat 4, bedroom	39	62 (-5 dB CODE)	Pass
1125064224	2F Flat 9, bedroom	1F Flat 5, bedroom	37	62 (-5 dB CODE)	Pass
1125064225	2F Flat 6, living	1F Flat 3, living	37	62 (-5 dB CODE)	Pass
1125064226	6F Flat 20, bedroom	5F Flat 18, bedroom	43	62 (-5 dB CODE)	Pass
1125064227	5F Flat 19, living	4F Flat 15, living	41	62 (-5 dB CODE)	Pass
1125064228	4F Flat 16, living	3F Flat 12, living	42	62 (-5 dB CODE)	Pass
1125064229	4F Flat 16, bedroom	3F Flat 12, bedroom	42	62 (-5 dB CODE)	Pass
1125064230	4F Flat 17, living	3F Flat 13, living	43	62 (-5 dB CODE)	Pass

Table 4: Summary of results (impact sound insulation)

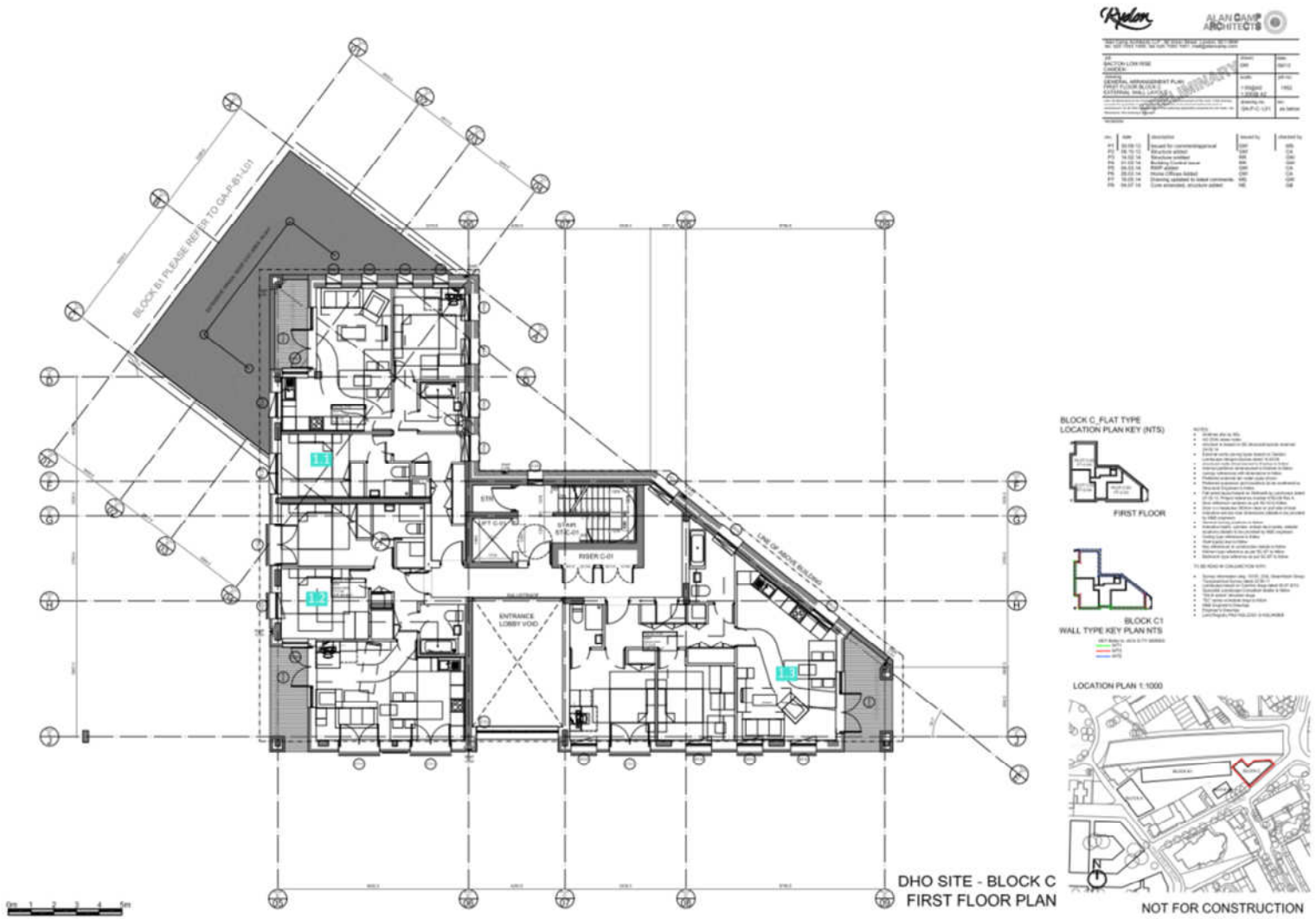


Figure 1: First floor plan

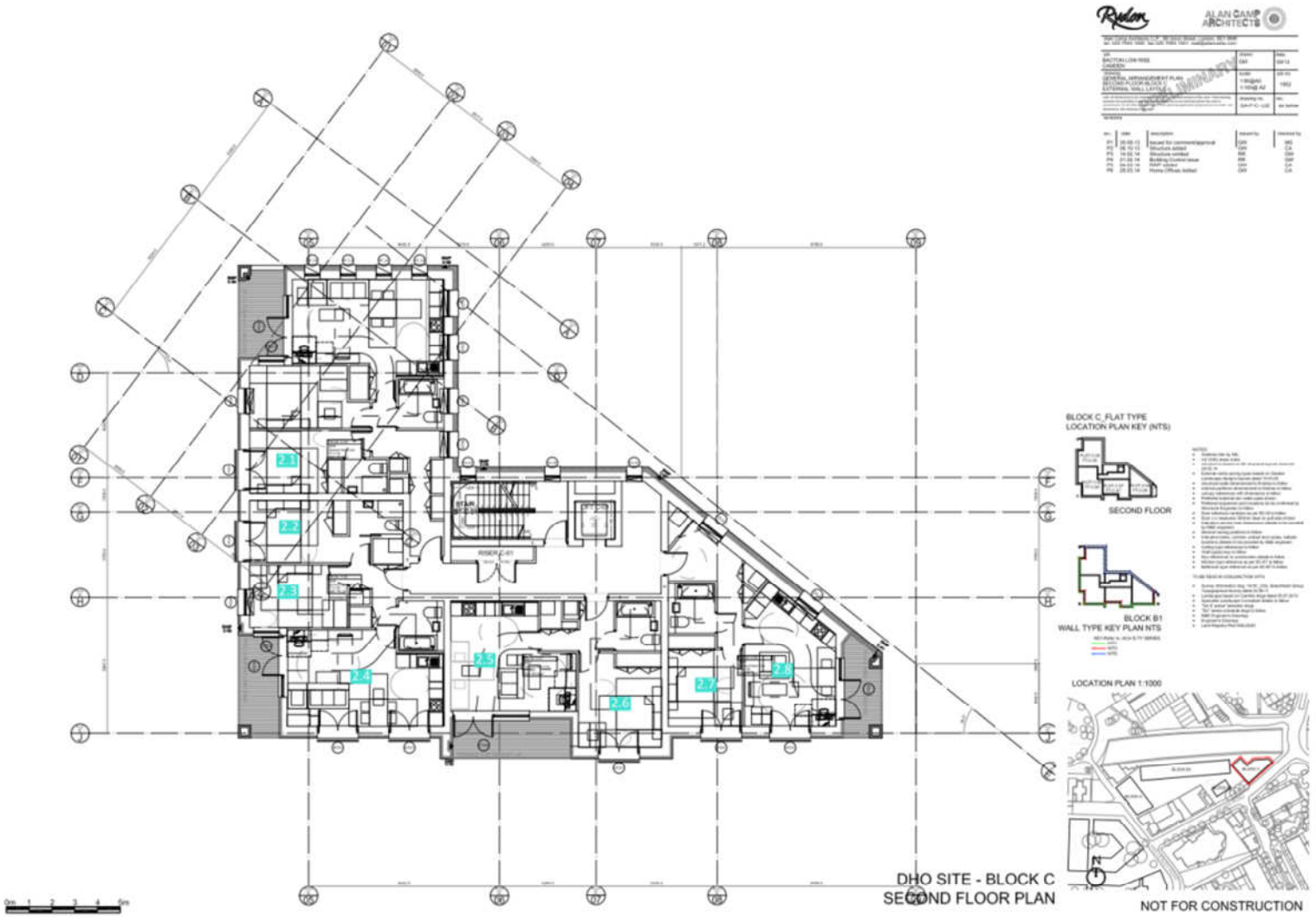


Figure 2: Second floor plan

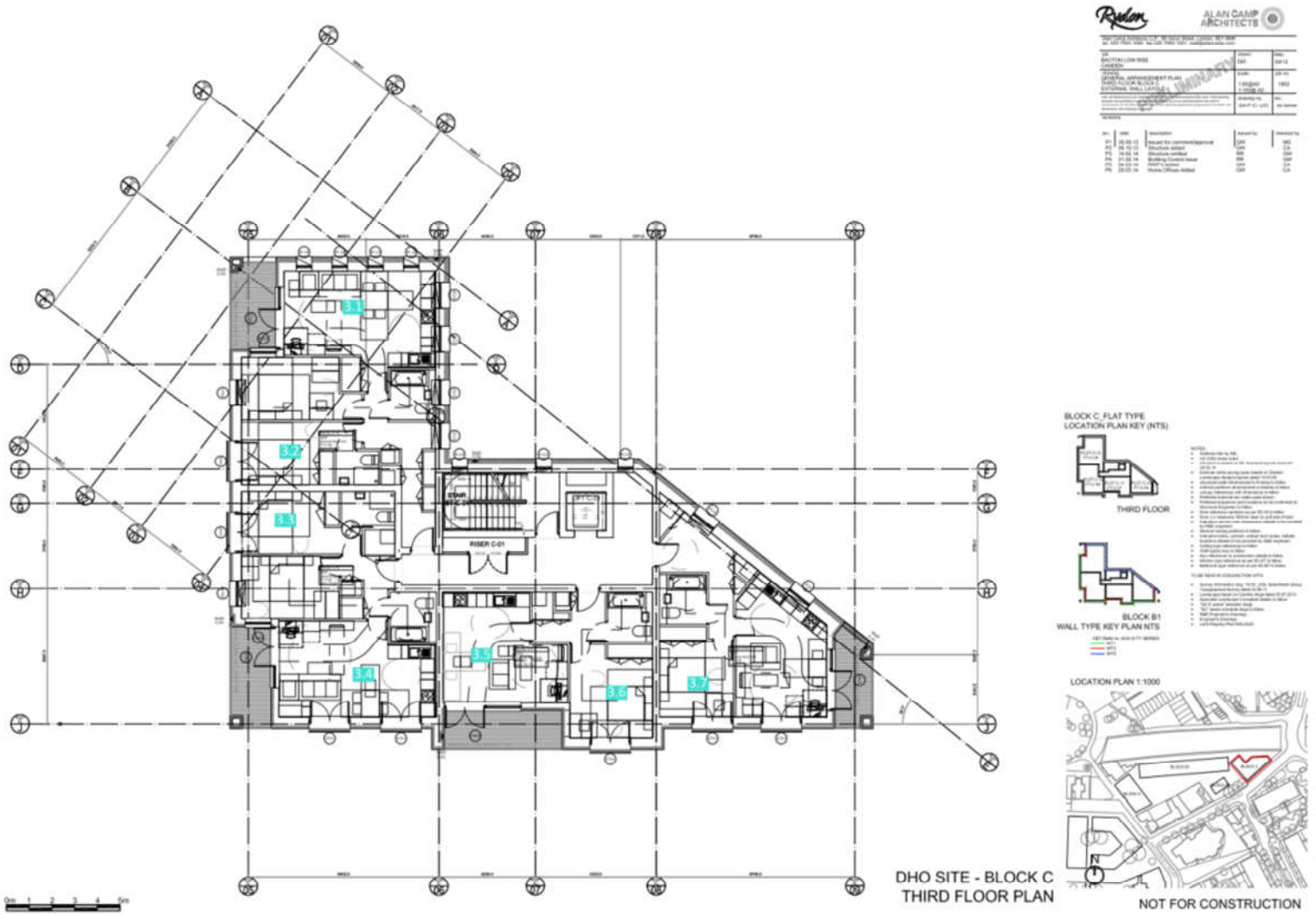


Figure 3: Third floor plan

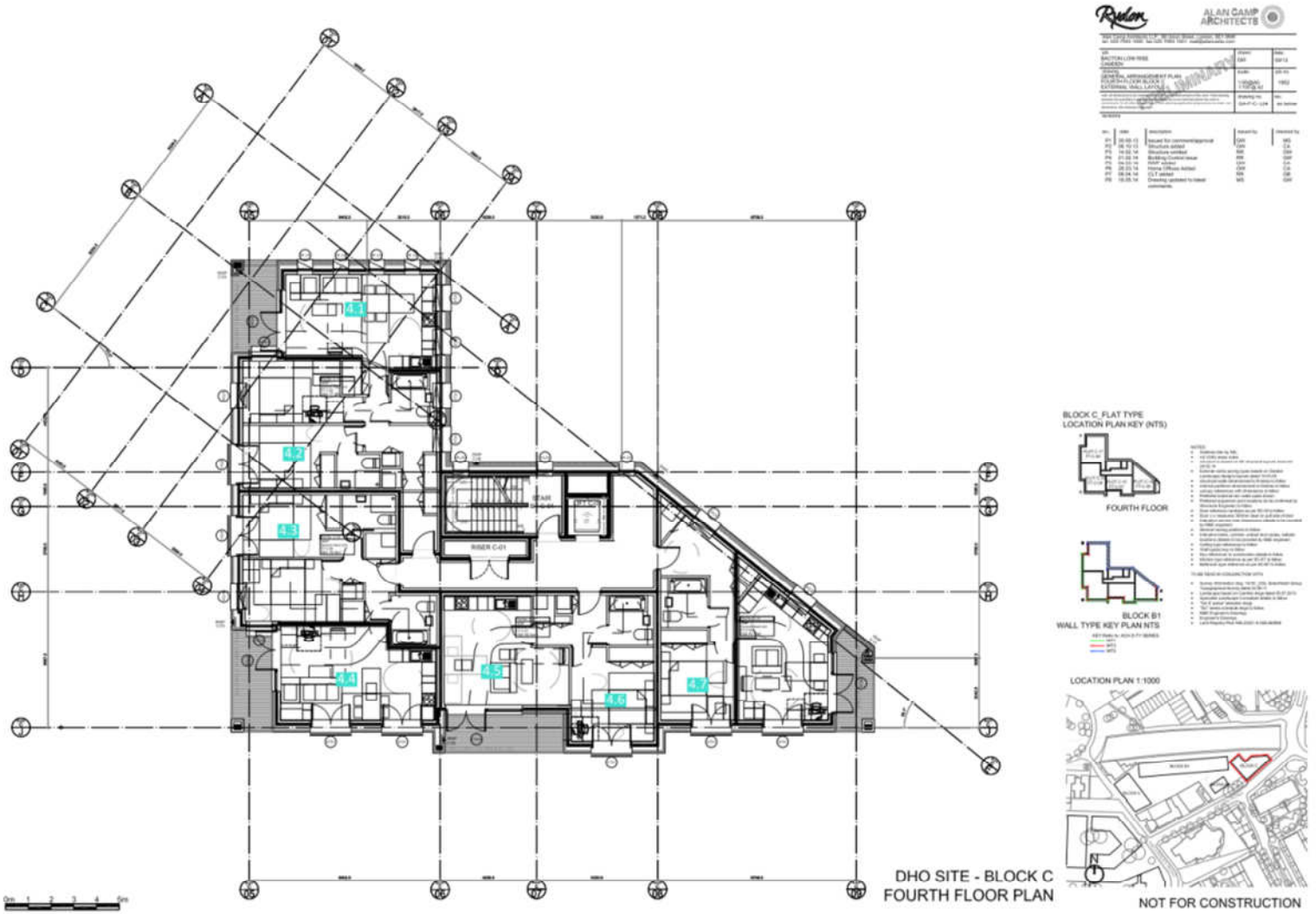


Figure 4: Fourth floor plan

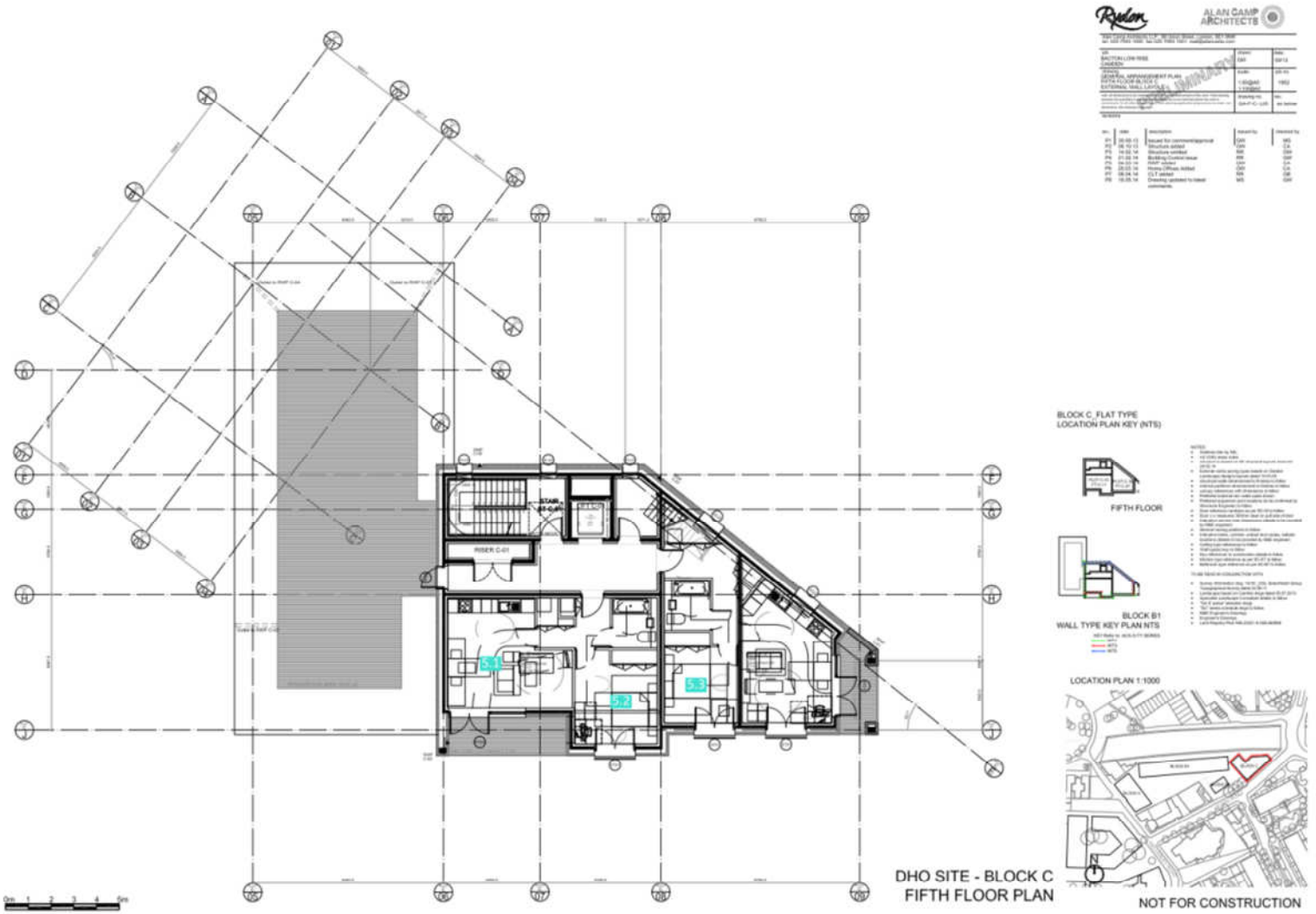


Figure 5: Fifth floor plan

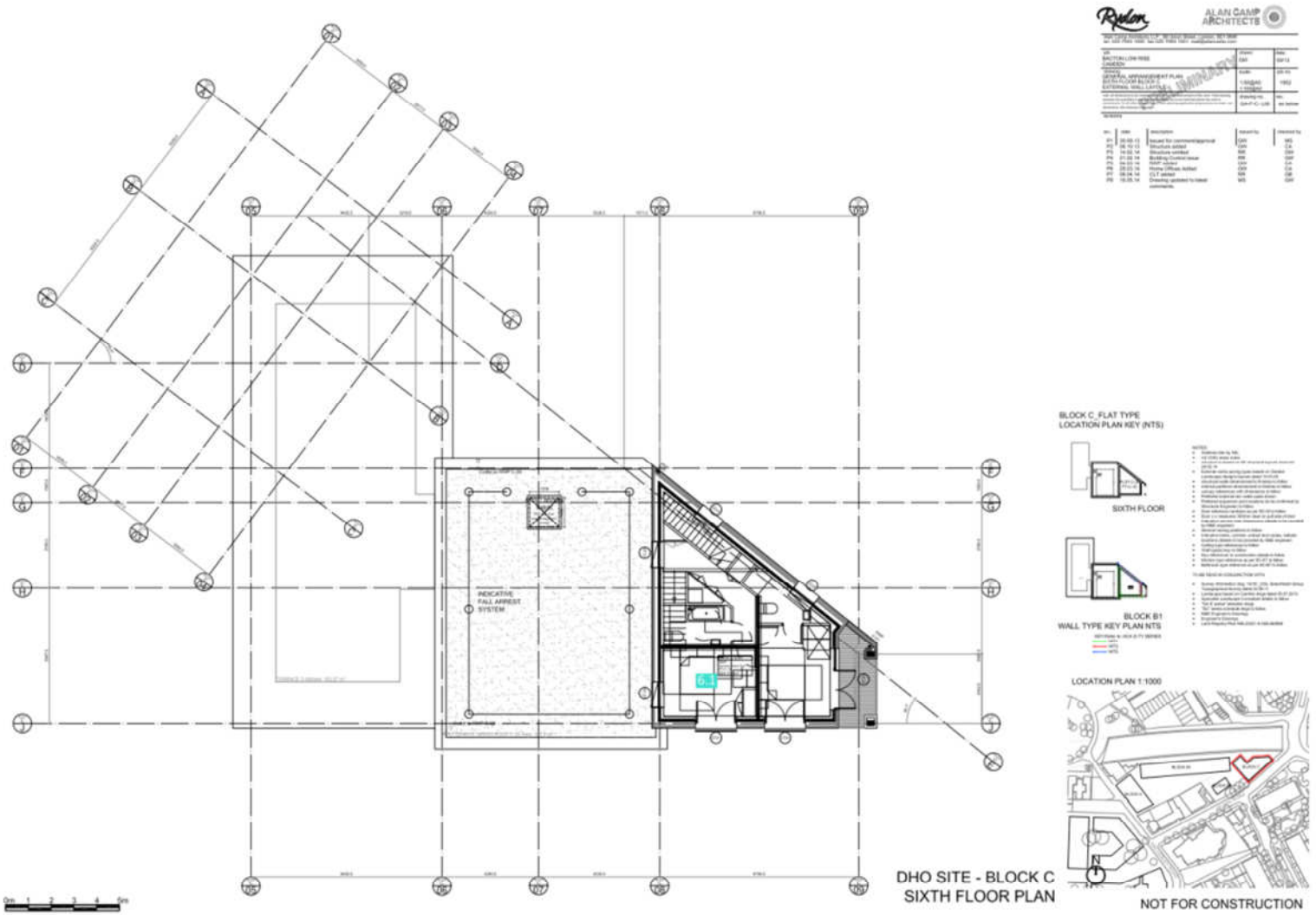


Figure 6: Sixth floor plan

APPENDIX 1 Test equipment

Test equipment - airborne sound insulation

Description	Serial no	Calibration	
		Date	Certificate no
Measurement instrumentation			
Rion Type NA-28 sound level meter	00170246	31/03/15	U18435
Rion type NH-23 pre-amplifier	60254	31/03/15	U18435
Rion type UC-59 ½-inch free field microphone	00299	31/03/15	18433
Rion type NX-28BA Building Acoustics Card	00670019	-	-
NC-74 Sound Level Meter Calibrator	34773049	31/03/15	U18434
Brüel & Kjær 2260_G2 sound level meter	244624	30/08/2016	30/08/2018
Brüel & Kjær 4189 Microphone	2550184	30/08/2016	30/08/2018
Brüel & Kjær 4231 Calibrator	2463721	30/08/2016	30/08/2017
Sound source			
TECP white noise source	nsn	-	-
Alesis DEQ230 digital ⅓-octave equaliser	00692	-	-
Alto D1 power amplifier	9070007842	-	-
ANV Measurement Systems dodecahedron loudspeaker	nsn	-	-
Brüel & Kjær Power Amp	25508857		
Brüel & Kjær Omnidirectional Loudspeaker	5007		

Test equipment – impact sound insulation

Description	Serial no	Calibration	
		Date	Certificate no
Measurement instrumentation			
Rion Type NA-28 sound level meter	00170246	31/03/15	U18435
Rion type NH-23 pre-amplifier	60254	31/03/15	U18435
Rion type UC-59 ½-inch free field microphone	00299	31/03/15	18433
Rion type NX-28BA Building Acoustics Card	00670019	-	-
NC-74 Sound Level Meter Calibrator	34773049	31/03/15	U18434
Brüel & Kjær 2260_G2 sound level meter	244624	30/08/2016	30/08/2018
Brüel & Kjær 4189 Microphone	2550184	30/08/2016	30/08/2018
Brüel & Kjær 4231 Calibrator	2463721	30/08/2016	30/08/2017
Sound source			
Sound Solutions Tapping Machine	TP02036	22/08/16	TP02036/08/16
Brüel & Kjær Tapping Machine 3207	2574491	31/03/2015	31/03/2017

APPENDIX 2 Test verification

Notice to Building Control Officer

Certification of Test Results

ANC operates an online, secure, paperless certification system for sound insulation tests.

The online verification (certification) system means that Building Control Bodies will need to follow the steps below to verify the results quoted in the relevant test report:

1. Go to the ANC secure server at www.theanc.co.uk
2. Navigate to the ADvANCE page which links to the ANC site available for use by BCOs.
3. Enter the following in the spaces provided:

   Task Number: 50642 Task Password: EAGMAC
4. Select role “Building Control Officer” and press “Login”
5. You will then see a summary list of results of all the Tests undertaken to date for this project (Task) as held on the secure primary server and you can print this table for your records.

APPENDIX 3 Ambient & Source Level Differences

Airborne

Receiver room		⅓-octave band centre frequency, kHz															
		100	125	160	200	250	315	400	500	630	800	1k	1.25k	1.6k	2k	2.5k	3.15k
2.5	source 1/receiver 1	-	-	-	-	-	-	-	-	5.8	-	-	-	-	-	-	-
	source 1/receiver 2	-	-	-	-	-	-	-	-	-	5.8	4.4	-	-	-	-	5.6
	source 2/receiver 1	-	-	-	-	-	-	-	5.8	1.3	1.4	0.3	-0.8	-1.8	-3.2	-4.3	-5.4
	source 2/receiver 2	-	-	-	-	-	-	-	-	2.3	3	3.2	2.4	2.5	2.5	2.1	2.1
2.7	source 1/receiver 1	-	-	-	-	-	-	-	-	2.5	1.8	0.8	3.8	5.8	-	-	-
	source 1/receiver 2	-	-	-	-	-	-	-	-	3	1	0	2.2	2	2.4	2.9	3.8
	source 2/receiver 1	-	-	-	-	-	-	-	-	2.7	3.3	2.9	1.8	3.7	4	5	3.7
	source 2/receiver 2	-	-	-	-	-	-	-	-	2.3	1.1	-0.8	-2.3	0.5	1	2.9	1.5
1.2	source 1/receiver 1	3.2	-0.9	3.4	-	-	-	-	-	4.6	4.3	1.3	-1.6	-3.9	-3.5	-3.3	-4.8
	source 1/receiver 2	2.9	-2.6	3.2	-	-	-	-	-	4.8	5.1	2.2	0.6	-0.5	1.6	2.2	2
	source 2/receiver 1	5.8	-	-	-	-	-	-	-	0.1	-1.1	-2.8	-3.9	-6.3	-7.7	-9	-11.3
	source 2/receiver 2	-	-	-	-	-	-	-	-	0.5	0.1	-1	-1.3	-2.1	-1.5	-0.2	-1.9
1.1	source 1/receiver 1	-	-	-	-	-	-	-	-	-	5.8	3.1	4.5	5.8	4.6	3.5	4.7
	source 1/receiver 2	-	-	-	-	-	-	-	-	-	3.3	0.2	0.3	0.5	0.3	1.2	3.1
	source 2/receiver 1	-	-	-	-	-	-	-	-	-	-	3.5	4.1	2.6	2.6	2.7	3.2
	source 2/receiver 2	-	-	-	-	-	-	-	-	-	-	4.2	4.3	3.1	3	3.3	2.2
1.3	source 1/receiver 1	-	3.5	-	-	-	-	-	4.1	2.7	2	1.6	1.8	2	1.4	0.7	-0.1
	source 1/receiver 2	-	3.3	-	-	-	-	-	3.5	2.3	1.2	0.8	0.7	0.6	-0.4	-1.2	-3.2
	source 2/receiver 1	-	-	-	-	-	-	-	4.5	1.6	1.1	0.9	0.6	1.2	1	1.3	1.3
	source 2/receiver 2	-	-	-	-	-	-	-	4.5	2	1.2	0.8	0.9	1.6	1.1	1	1.4
5.3	source 1/receiver 1	-	-	-	-	-	-	-	-	-	1.22	1.83	3.34	4.88	5.66	-	-
	source 1/receiver 2	-	-	-	-	-	-	-	-	-	-0.14	-0.89	1.12	2.12	3.2	4.5	-
	source 2/receiver 1	-	-	-	-	-	-	-	-	-	-	4.35	5.48	-	-	-	-
	source 2/receiver 2	-	-	-	-	-	-	-	-	-	5.59	1.45	3.41	5.67	-	-	-
4.6	source 1/receiver 1	4.3	4.4	4.2	2.4	0.6	3.4	3.7	3.8	3.3	2.5	1.9	-0.4	3.1	3.6	5.6	-
	source 1/receiver 2	5.3	5.2	3.6	1.7	1.2	3.7	3.7	3.6	3.5	3.6	3.9	1.7	4.0	4.4	5.5	-
	source 2/receiver 1	-	-	-	-	-	-	-	-	5.3	3.8	1.1	0.3	0.8	1.1	2.6	3.7
	source 2/receiver 2	-	-	-	-	-	-	-	-	4.9	3.4	0.2	0.1	0.1	0.1	2.0	3.1
3.4	source 1/receiver 1	-	-	-	-	-	-	-	4.1	-	-	-	-	6.0	-	-	-
	source 1/receiver 2	-	-	-	-	-	-	-	4.1	-	-	-	-	-	-	-	-
	source 2/receiver 1	-	-	-	-	-	-	-	-	4.0	-	-	-	5.8	-	-	-
	source 2/receiver 2	-	-	-	-	-	-	-	-	4.6	-	-	-	-	-	-	-
3.3	source 1/receiver 1	-	-	-	-	-	4.6	-	-	5.8	3.5	3.7	1.6	3.8	4.8	5.2	4.7
	source 1/receiver 2	-	-	-	-	-	5.9	-	-	5.9	4.8	3.8	2.3	3.8	5.1	5.3	5.0
	source 2/receiver 1	-	-	5.2	-	0.2	1.0	4.0	2.6	3.1	2.5	1.4	0.0	2.6	4.0	4.2	3.9
	source 2/receiver 2	5.1	-	4.8	-	-0.3	1.6	3.7	2.1	3.3	0.8	2.6	-0.8	1.3	3.6	4.2	4.3
3.1	source 1/receiver 1	-	-	-	-	-	-	-	-	-	6.0	5.8	-	-	-	-	-
	source 1/receiver 2	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	-	-
	source 2/receiver 1	-	-	-	-	-	-	-	-	-	-	5.6	-	-	-	-	-
	source 2/receiver 2	-	-	-	-	-	-	-	-	-	-	5.5	-	-	-	-	-
3.2	source 1/receiver 1	-	-	-	-	-	-	-	-	3.9	-0.1	0.7	0.1	-0.7	-0.1	-0.6	-2.1
	source 1/receiver 2	-	-	-	-	-	-	-	-	4.4	-0.3	-0.5	-0.7	-0.5	0.4	0	-1.9
	source 2/receiver 1	-	-	-	-	-	-	-	-	3.8	0.9	1.8	1.4	0.7	1.9	3.3	2.3
	source 2/receiver 2	-	-	-	-	-	-	-	-	4.2	2.4	3.5	2.2	4.1	-	-	-
3.5	source 1/receiver 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	source 1/receiver 2	-	-	-	-	-	-	-	-	-	-	5.1	-	-	-	-	-
	source 2/receiver 1	-	-	-	-	-	-	-	-	-	-	-	-	5.8	3.9	3.8	4.6
	source 2/receiver 2	-	-	-	-	-	-	-	-	-	-	-	5.9	4.8	3.3	2.8	3.6
3.7	source 1/receiver 1	-	-	4.7	-	-	-	-	-	5.8	1.4	2.4	2.6	4.2	3.5	-	-
	source 1/receiver 2	-	5.1	4	-	-	-	-	-	4.8	0.2	-0.9	-0.1	1	1	3.5	4.3

	source 2/receiver 1	-	4.2	4.2	-	-	-	-	-	-	3.6	-3.8	-2.1	1	5	-	-
	source 2/receiver 2	-	0.6	4.3	5.6	-	-	-	-	-	3.5	-1.6	-0.7	0.6	1.1	3.1	4.3
2.7	source 1/receiver 1	-	-	-	-	-	-	-	-	-	5.6	-1	0.5	-1.2	-0.9	0.2	1.1
	source 1/receiver 2	-	-	-	-	-	-	-	-	-	5.3	5	1.4	1.3	2.2	1.8	1.5
	source 2/receiver 1	-	-	-	-	-	-	-	-	-	-	3.6	1.2	4.6	4	3.3	2.2
	source 2/receiver 2	-	-	-	-	-	-	-	-	5.5	3.9	-1	-4.6	-4	-4.9	-4.6	-5.1
2.5	source 1/receiver 1	-	-	-	-	-	-	-	-	4.6	-0.3	-0.3	1.1	5	-	-	-
	source 1/receiver 2	-	-	-	-	-	-	-	-	5.2	1.5	1.8	2.9	-	-	-	-
	source 2/receiver 1	-	-	-	-	-	-	-	4.2	3.1	3.7	-	5.4	5.7	-	-	-
	source 2/receiver 2	-	-	-	-	-	-	-	4.5	3.2	3.1	-	4.8	5.9	-	-	-
2.1	source 1/receiver 1	-	-	-	-	-	-	-	-	-	-	-	-	3.6	2.6	1.4	-0.5
	source 1/receiver 2	-	-	-	-	-	-	-	-	-	5.1	-	5.2	2.4	1.8	1.1	-0.9
	source 2/receiver 1	-	-	-	-	-	-	-	-	3.4	-0.9	-0.3	-3.3	-7.3	-10	-9.5	-11
	source 2/receiver 2	-	-	-	-	-	-	-	-	2.7	-1.4	-1.2	-3	-7.1	-9	-7.8	-6.9
5.3	source 1/receiver 1	-	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	-
	source 1/receiver 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	source 2/receiver 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	source 2/receiver 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4.6	source 1/receiver 1	-	-	-	-	-	4.9	-	-	-	-	-	-	-	-	-	-
	source 1/receiver 2	-	-	-	-	-	4.7	-	-	-	-	-	-	-	-	-	-
	source 2/receiver 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	source 2/receiver 2	-	-	-	-	-	-	-	-	-	-	5.1	-	-	-	-	-
4.2	source 1/receiver 1	-	-	-	-	-	-	-	-	-	-0.7	-2.0	-1.2	0.2	1.8	1.4	0.7
	source 1/receiver 2	-	-	-	-	-	-	-	-	-	1.4	0.8	2.5	2.1	2.3	1.6	0.8
	source 2/receiver 1	-	-	-	-	-	-	-	-	-	3.1	1.4	2.1	4.6	-	-	-
	source 2/receiver 2	-	-	-	-	-	-	-	-	-	3.1	1.4	2.1	4.6	-	-	-
4.7	source 1/receiver 1	-	-	-	-	-	-	-	-	-	-	2.2	1.2	2.1	1.2	1.9	2.5
	source 1/receiver 2	-	-	-	-	-	-	-	-	-	-	2.9	1.8	4.3	4.2	5.2	3.9
	source 2/receiver 1	-	-	-	-	-	-	-	-	-	5.2	2.5	2.4	1.4	0.8	-0.6	2.5
	source 2/receiver 2	-	-	-	-	-	-	-	-	-	4.1	0.9	0.3	-0.6	-1.1	-1.0	2.1

Table 5: Difference between ambient noise level and receiver measurement with source

Impact

Receiver room		⅓-octave band centre frequency, kHz															
		100	125	160	200	250	315	400	500	630	800	1k	1.25k	1.6k	2k	2.5k	3.15k
2.5	source 1	-	-	-	-	-	-	-	-	-	5.7	3.7	-	-	-	-	-
	source 2	-3.5	-	-	-	-	-	-	-	-	0.4	-3.1	-2.1	-3.8	-4.3	-1.5	0.1
	source 3	-	-	-	-	-	-	-	-	-	-	5.9	4.9	3.4	4.0	3.9	1.7
	source 4	-	-	-	-	-	-	-	-	-	-	5.6	4.1	4.6	5.3	4.3	3.2
2.7	source 1	-	-	-	-	-	-	-	-	-	-	-	5.9	6.0	5.6	-	-
	source 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	source 3	-	-	-	-	-	-	-	-	5.0	2.7	1.2	0.5	-1.6	-2.6	-0.7	-1.4
	source 4	-	-	-	-	-	-	-	-	-	5.8	1.5	2.4	2.7	2.4	5.1	3.8
1.2	source 1	-	4.3	-	-	-	-	-	-	-	-	-	-	6.0	-	6.0	3.5
	source 2	-3.7	2.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	source 3	1.2	5.4	-	-	-	-	-	-	3.7	-2.4	-3.7	-1.8	-5.3	-0.5	2.9	-0.2
	source 4	0.1	5.7	-	-	-	-	-	-	4.0	-2.5	-4.8	-2.1	-5.0	0.2	3.2	0.7
1.1	source 1	-5.4	-2.7	-5.9	3.8	-1.3	-	-	4.7	-3.9	-5.5	-7.6	-7.3	-5.2	-4.2	-2.5	-0.7
	source 2	-	-2.2	-2.6	4.4	-0.5	-	-	-	2.6	1.0	-1.7	-1.7	-1.5	0.0	1.5	3.7
	source 3	-	1.4	1.5	2.4	5.6	5.4	-	1.7	-4.0	-2.9	-5.6	-5.5	-4.4	-3.2	-1.3	-1.0
	source 4	-	0.6	1.7	2.9	-	-	-	-1.0	-7.2	-5.5	-9.3	-9.4	-10.0	-9.1	-7.4	-7.5
1.3	source 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	source 2	-	-	-	-	-	-	-	-	-	-	4.9	4.9	5.7	-1.6	2.5	-
	source 3	2.7	4.0	-2.4	-	-	-	-	-	4.0	-1.0	-1.0	-1.2	-1.1	0.0	1.7	4.8
	source 4	-	2.8	-2.9	-	-	-	-	4.9	3.5	-0.6	0.6	1.0	2.7	4.5	-	-
5.3	source 1	-	-	-	-	-	-	-	-	-	-	5.4	0.2	-1.7	-3.3	-2.5	-2.5
	source 2	-	-	-	-	-	-	-	-	-	-	-	3.4	2.6	0.2	-0.9	-2.4
	source 3	-	-	-	-	-	-	-	-	-	-	-	-	5.5	4.2	3.1	2.9
	source 4	-	-	-	-	-	-	-	-	-	-	-	-	-	4.9	5.0	5.3
4.6	source 1	-	-	-	-	-	-	-	-	-	-	-0.2	1.4	1.5	1.1	1.4	1.6
	source 2	-	-	-	-	-	-	-	-	-	3.1	-0.9	1.3	2.6	1.8	0.7	-0.4
	source 3	-	-	-	-	-	-	-	-	-	-	5.9	4.0	4.4	5.9	-	5.5
	source 4	-	-	-	-	-	-	-	-	-	-	-	-	-	5.6	5.4	3.6
3.4	source 1	-	-	-	-	-	-	-	-	-	-	3.1	1.9	-0.6	-2.0	-1.3	-0.1
	source 2	-	-	-	-	-	-	-	-	-	-	4.2	3.3	4.2	4.3	4.1	2.1
	source 3	-	-	-	-	-	-	-	-	-	-	5.7	4.6	4.4	4.4	4.3	1.9
	source 4	-	-	-	-	-	-	-	-	-	-	5.7	4.8	-	-	-	-
3.3	source 1	-3.1	1.5	4.6	-	-	-	-	-	5.7	0.9	-1.6	0.0	-4.0	-3.1	-3.0	-3.4
	source 2	-	-0.3	1.6	-	4.9	-	-	5.6	3.6	-0.7	-3.1	-4.6	-4.6	-3.1	-0.6	0.5
	source 3	-	-	3.8	-	-	-	2.3	-0.2	0.1	-1.6	-3.6	-3.8	-5.0	-5.4	-5.8	-5.3
	source 4	-	3.5	2.6	-	4.6	-	5.2	1.1	0.2	-4.7	-6.4	-7.2	-8.6	-9.3	-9.5	-8.6
3.1	source 1	-	-	-	-	-	-	-	-	-	-	3.5	3.2	1.2	0.6	1.1	1.5
	source 2	-	-	-	-	-	-	-	-	-	-	-	-	4.4	4.4	4.9	4.7
	source 3	-	-	-	-	-	-	-	-	-	-	5.5	3.6	3.0	2.3	2.3	2.5
	source 4	-	-	-	-	-	-	-	-	-	-	4.3	3.2	1.6	0.7	1.2	1.3

Table 6: Difference between ambient noise level and receiver measurement with source

APPENDIX 4 Test results

Sustainable Acoustics

FIELD MEASUREMENT OF AIRBORNE SOUND INSULATION BETWEEN ROOMS

Standardised level difference DnT, w according to ISO 140-4

Evaluation based on field measurement results obtained in 1/3-octave bands by an engineering method

Project:	Bacton Clock C	**Project no:**	13-0069-0
		Test number:	1125064201
Source room:	3F Flat 11, living	**Test date:**	12-Jan-2017
		Analysis date:	13-Jan-2017
Reciever room:	2F Flat 7, living	**Tester:**	JS,SR,CM,PT

Test Partition: Engineered oak flooring on resilient layer on 250mm concrete slab, with ceiling below comprising one layer of 12.5mm fireline plasterboard on MF hangers creating 250mm void with 50mm mineral wool in void

Partition area, m^2:	23.0
Source room volume, m^3:	55.2
Receiving room volume, m^3:	55.2

Frequency, Hz	DnT, dB
100	36.1
125	49.5
160	51.4
200	57.1
250	56.5
315	56.4
400	55.4
500	>= 67.2*
630	>= 73.9*
800	>= 70.5*
1000	>= 69.3*
1250	>= 73.3*
1600	>= 76.8*
2000	>= 75.3*
2500	>= 73.3*
3150	>= 73.7*

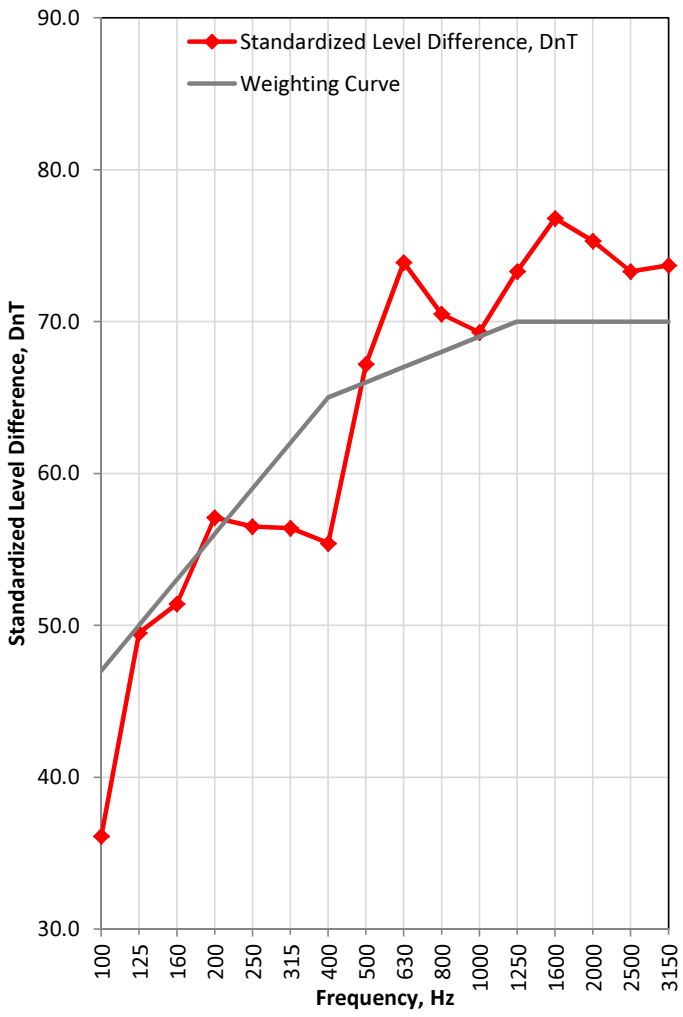
* approaching or at the limit for measurement

DnT,w (C;Ctr): 66 (-4, -11) dB

Measured, DnT,w + Ctr: 55 dB

Criterion, DnT,w + Ctr: 50 dB

Test result: Pass



Sustainable Acoustics Ltd
5 Charlecote Mews
Winchester
Hampshire
SO23 8SR

Tested by:

Checked by:

ANC Registration Number: 112

Date: 13-Jan-2017

Sustainable Acoustics

FIELD MEASUREMENT OF AIRBORNE SOUND INSULATION BETWEEN ROOMS

Standardised level difference DnT, w according to ISO 140-4

Evaluation based on field measurement results obtained in 1/3-octave bands by an engineering method

Project:	Bacton Clock C	**Project no:**	13-0069-0
		Test number:	1125064202
Source room:	3F Flat 10, bedroom	**Test date:**	12-Jan-2017
		Analysis date:	13-Jan-2017
Reciever room:	2F Flat 6, bedroom	**Tester:**	JS,SR,CM,PT

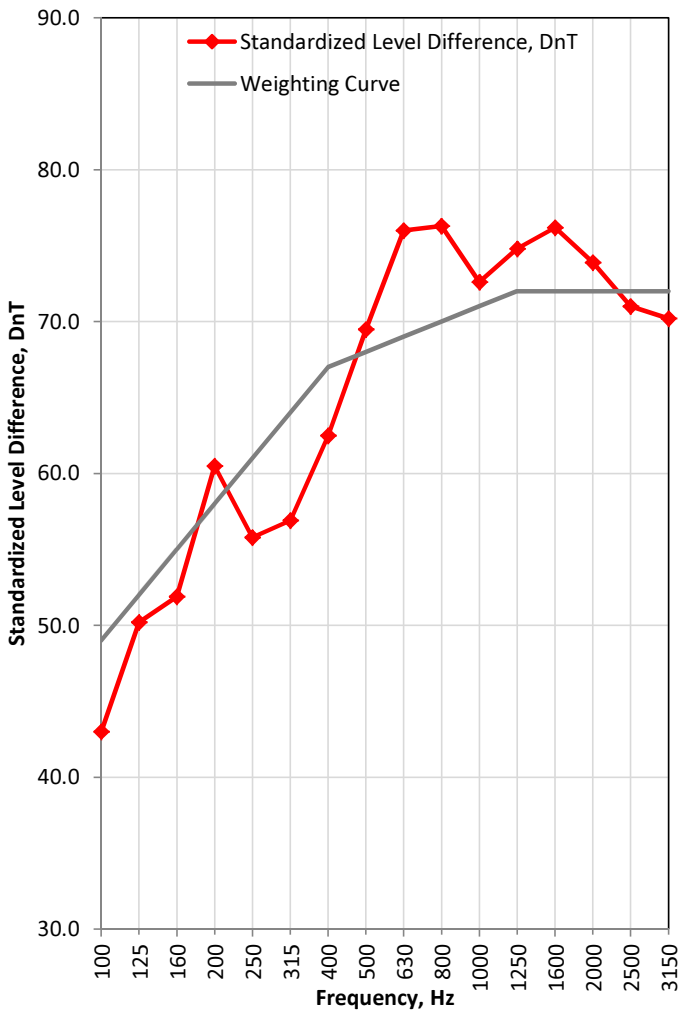
Test Partition: Engineered oak flooring on resilient layer on 250mm concrete slab, with ceiling below comprising one layer of 12.5mm fireline plasterboard on MF hangers creating 250mm void with 50mm mineral wool in void

Partition area, m^2:	12.0
Source room volume, m^3:	28.8
Receiving room volume, m^3:	28.8

Frequency, Hz	DnT, dB
100	43.0
125	50.2
160	51.9
200	60.5
250	55.8
315	56.9
400	62.5
500	69.5
630	>= 76.0*
800	>= 76.3*
1000	>= 72.6*
1250	>= 74.8*
1600	>= 76.2*
2000	>= 73.9*
2500	>= 71.0*
3150	>= 70.2*

* approaching or at the limit for measurement

DnT,w (C;Ctr):	**68 (-2, -8) dB**
Measured, DnT,w + Ctr:	**60 dB**
Criterion, DnT,w + Ctr:	**50 dB**
Test result:	**Pass**



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Hampshire
SO23 8SR

Tested by:

Checked by:

ANC Registration Number: 112

Date: 13-Jan-2017

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FIELD MEASUREMENT OF AIRBORNE SOUND INSULATION BETWEEN ROOMS

Standardised level difference DnT, w according to ISO 140-4

Evaluation based on field measurement results obtained in 1/3-octave bands by an engineering method

Project:	Bacton Clock C	**Project no:**	13-0069-0
		Test number:	1125064203
Source room:	2F Flat 8, bedroom	**Test date:**	12-Jan-2017
		Analysis date:	13-Jan-2017
Reciever room:	1F Flat 4, bedroom	**Tester:**	JS,SR,CM,PT

Test Partition: Engineered oak flooring on resilient layer on 250mm concrete slab, with ceiling below comprising one layer of 12.5mm fireline plasterboard on MF hangers creating 250mm void with 50mm mineral wool in void

Partition area, m^2:	12.0
Source room volume, m^3:	28.8
Receiving room volume, m^3:	28.8

Frequency, Hz	DnT, dB
100	>= 53.9*
125	>= 61.2*
160	>= 60.8*
200	60.1
250	61.1
315	59.3
400	63.6
500	71.3
630	>= 80.3*
800	>= 79.3*
1000	>= 82.1*
1250	>= 86.8*
1600	>= 88.1*
2000	>= 84.6*
2500	>= 80.2*
3150	>= 78.8*

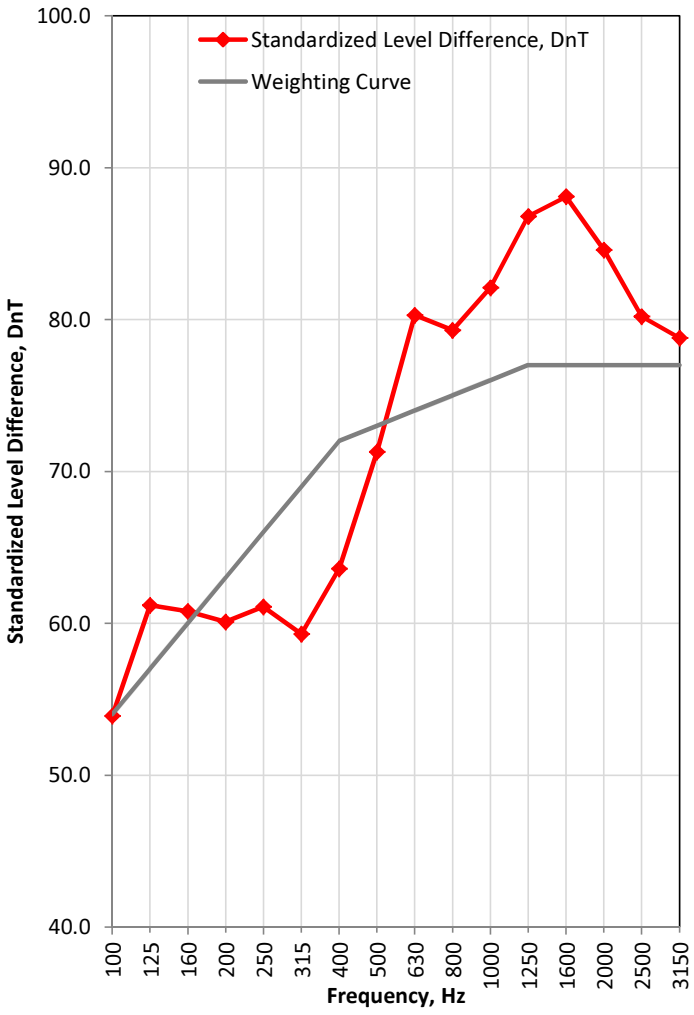
* approaching or at the limit for measurement

DnT,w (C;Ctr): 73 (-2, -6) dB

Measured, DnT,w + Ctr: 67 dB

Criterion, DnT,w + Ctr: 50 dB

Test result: Pass



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Hampshire
SO23 8SR

Tested by:

Checked by:

ANC Registration Number: 112

Date: 13-Jan-2017

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FIELD MEASUREMENT OF AIRBORNE SOUND INSULATION BETWEEN ROOMS

Standardised level difference DnT, w according to ISO 140-4

Evaluation based on field measurement results obtained in 1/3-octave bands by an engineering method

Project:	Bacton Clock C	**Project no:**	13-0069-0
		Test number:	1125064204
Source room:	2F Flat 9, bedroom	**Test date:**	12-Jan-2017
		Analysis date:	13-Jan-2017
Reciever room:	1F Flat 5, bedroom	**Tester:**	JS,SR,CM,PT

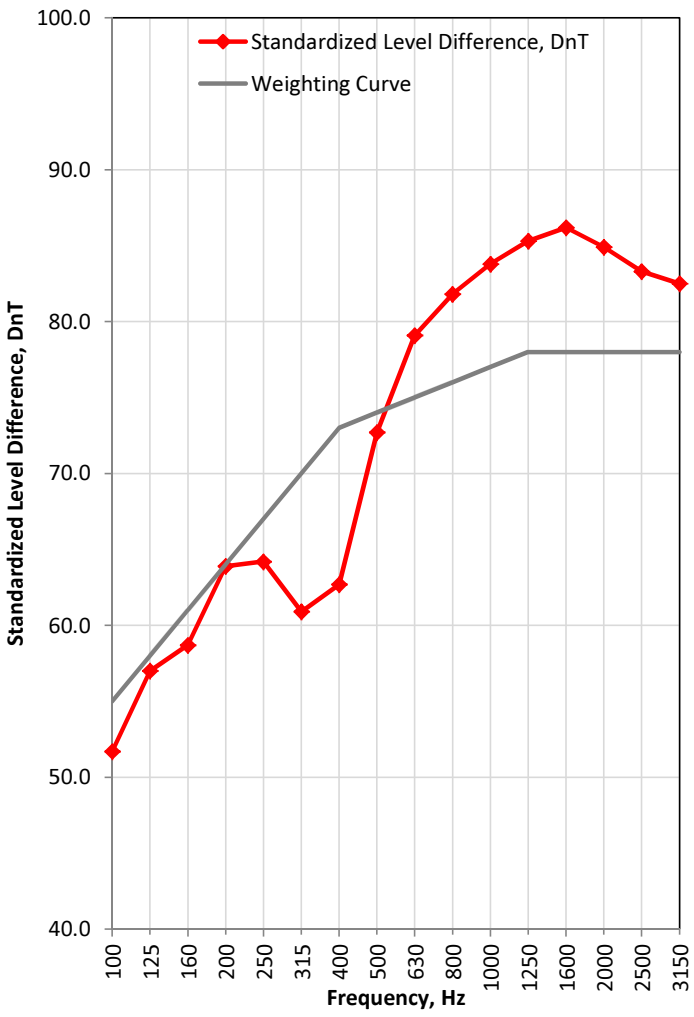
Test Partition: Engineered oak flooring on resilient layer on 250mm concrete slab, with ceiling below comprising one layer of 12.5mm fireline plasterboard on MF hangers creating 250mm void with 50mm mineral wool in void

Partition area, m^2:	11.7
Source room volume, m^3:	28.1
Receiving room volume, m^3:	28.1

Frequency, Hz	DnT, dB
100	51.7
125	57.0
160	58.7
200	63.9
250	64.2
315	60.9
400	62.7
500	72.7
630	79.1
800	>= 81.8*
1000	>= 83.8*
1250	>= 85.3*
1600	>= 86.2*
2000	>= 84.9*
2500	>= 83.3*
3150	>= 82.5*

* approaching or at the limit for measurement

DnT,w (C;Ctr):	**74 (-2, -7) dB**
Measured, DnT,w + Ctr:	**67 dB**
Criterion, DnT,w + Ctr:	**50 dB**
Test result:	**Pass**



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Hampshire
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Date: 13-Jan-2017

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FIELD MEASUREMENT OF AIRBORNE SOUND INSULATION BETWEEN ROOMS

Standardised level difference DnT, w according to ISO 140-4

Evaluation based on field measurement results obtained in 1/3-octave bands by an engineering method

Project:	Bacton Clock C	**Project no:**	13-0069-0
		Test number:	1125064205
Source room:	2F Flat 6, living	**Test date:**	12-Jan-2017
		Analysis date:	13-Jan-2017
Reciever room:	1F Flat 3, living	**Tester:**	JS,SR,CM,PT

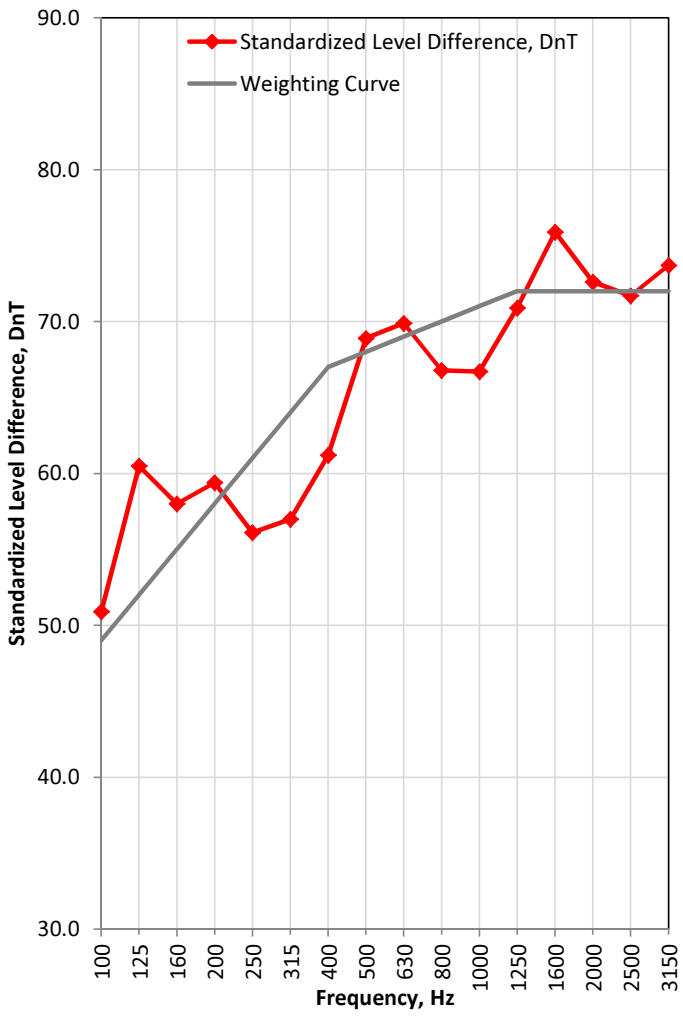
Test Partition: Engineered oak flooring on resilient layer on 250mm concrete slab, with ceiling below comprising one layer of 12.5mm fireline plasterboard on MF hangers creating 250mm void with 50mm mineral wool in void

Partition area, m^2:	12.0
Source room volume, m^3:	28.8
Receiving room volume, m^3:	28.8

Frequency, Hz	DnT, dB
100	50.9
125	>= 60.5*
160	58.0
200	59.4
250	56.1
315	57.0
400	61.2
500	>= 68.9*
630	>= 69.9*
800	>= 66.8*
1000	>= 66.7*
1250	>= 70.9*
1600	>= 75.9*
2000	>= 72.6*
2500	>= 71.7*
3150	>= 73.7*

* approaching or at the limit for measurement

DnT,w (C;Ctr):	**68 (-1, -4) dB**
Measured, DnT,w + Ctr:	**64 dB**
Criterion, DnT,w + Ctr:	**50 dB**
Test result:	**Pass**



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Tested by:

Checked by:

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Date: 13-Jan-2017

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FIELD MEASUREMENT OF AIRBORNE SOUND INSULATION BETWEEN ROOMS

Standardised level difference DnT, w according to ISO 140-4

Evaluation based on field measurement results obtained in 1/3-octave bands by an engineering method

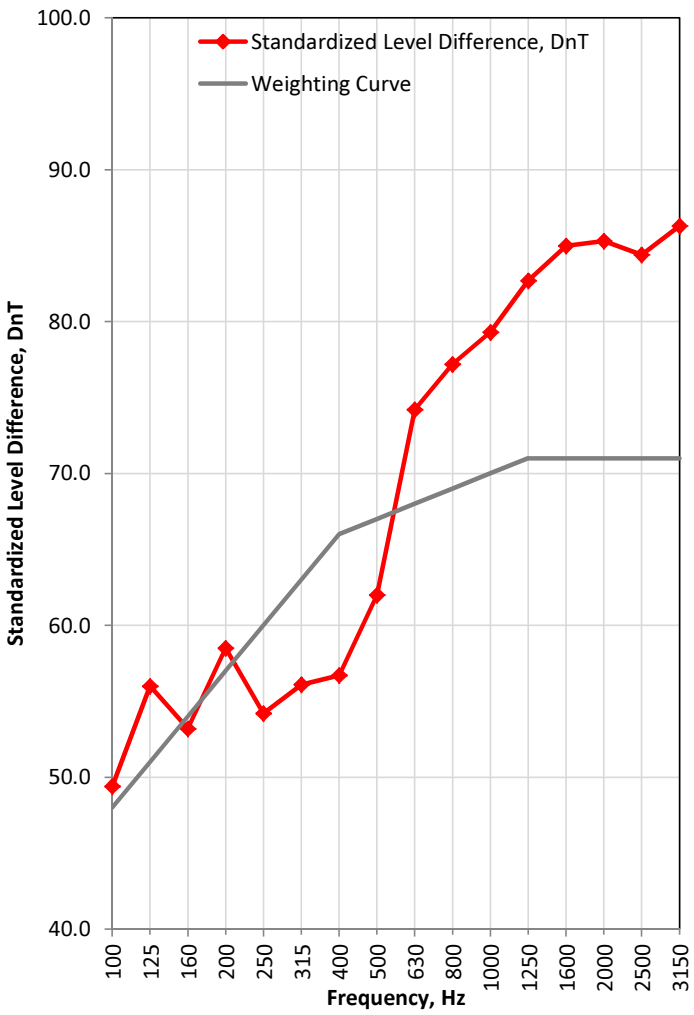
Project:	Bacton Clock C	**Project no:**	13-0069-0
		Test number:	1125064206
Source room:	6F Flat 20, bedroom	**Test date:**	12-Jan-2017
		Analysis date:	13-Jan-2017
Reciever room:	5F Flat 18, bedroom	**Tester:**	JS,SR,CM,PT

Test Partition: Engineered oak flooring on resilient layer on 250mm concrete slab, with ceiling below comprising one layer of 12.5mm fireline plasterboard on MF hangers creating 250mm void with 50mm mineral wool in void

Partition area, m^2:	10.7
Source room volume, m^3:	27.8
Receiving room volume, m^3:	25.7

Frequency, Hz	DnT, dB
100	49.4
125	56.0
160	53.2
200	58.5
250	54.2
315	56.1
400	56.7
500	62.0
630	74.2
800	>= 77.2*
1000	>= 79.3*
1250	>= 82.7*
1600	>= 85.0*
2000	>= 85.3*
2500	>= 84.4*
3150	86.3

* approaching or at the limit for measurement



DnT,w (C;Ctr):	**67 (-1, -5) dB**
Measured, DnT,w + Ctr:	**62 dB**
Criterion, DnT,w + Ctr:	**50 dB**
Test result:	**Pass**

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ANC Registration Number: 112

Date: 13-Jan-2017

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FIELD MEASUREMENT OF AIRBORNE SOUND INSULATION BETWEEN ROOMS

Standardised level difference DnT, w according to ISO 140-4

Evaluation based on field measurement results obtained in 1/3-octave bands by an engineering method

Project:	Bacton Clock C	**Project no:**	13-0069-0
		Test number:	1125064207
Source room:	5F Flat 19, living	**Test date:**	12-Jan-2017
		Analysis date:	13-Jan-2017
Reciever room:	4F Flat 15, living	**Tester:**	JS,SR,CM,PT

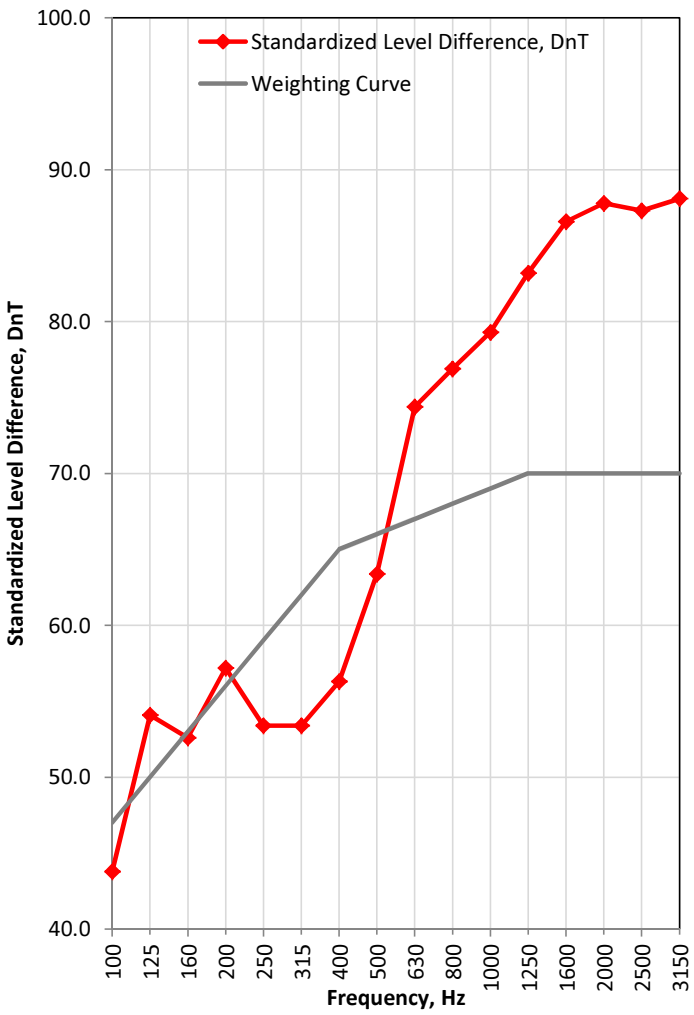
Test Partition: Engineered oak flooring on resilient layer on 250mm concrete slab, with ceiling below comprising one layer of 12.5mm fireline plasterboard on MF hangers creating 250mm void with 50mm mineral wool in void

Partition area, m^2:	22.7
Source room volume, m^3:	54.5
Receiving room volume, m^3:	54.5

Frequency, Hz	DnT, dB
100	>= 43.8*
125	>= 54.1*
160	>= 52.6*
200	>= 57.2*
250	>= 53.4*
315	>= 53.4*
400	>= 56.3*
500	>= 63.4*
630	>= 74.4*
800	>= 76.9*
1000	>= 79.3*
1250	>= 83.2*
1600	>= 86.6*
2000	>= 87.8*
2500	>= 87.3*
3150	>= 88.1*

* approaching or at the limit for measurement

DnT,w (C;Ctr):	**66 (-2, -6) dB**
Measured, DnT,w + Ctr:	**60 dB**
Criterion, DnT,w + Ctr:	**50 dB**
Test result:	**Pass**



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FIELD MEASUREMENT OF AIRBORNE SOUND INSULATION BETWEEN ROOMS

Standardised level difference DnT, w according to ISO 140-4

Evaluation based on field measurement results obtained in 1/3-octave bands by an engineering method

Project:	Bacton Clock C	**Project no:**	13-0069-0
		Test number:	1125064208
Source room:	4F Flat 16, living	**Test date:**	12-Jan-2017
		Analysis date:	13-Jan-2017
Reciever room:	3F Flat 12, living	**Tester:**	JS,SR,CM,PT

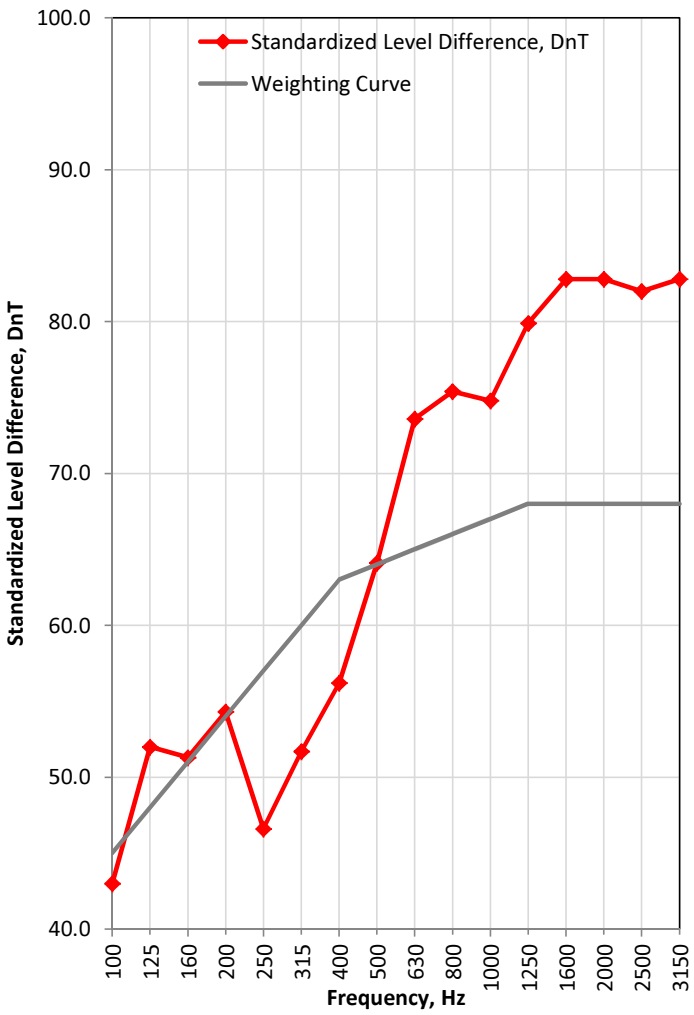
Test Partition: Engineered oak flooring on resilient layer on 250mm concrete slab, with ceiling below comprising one layer of 12.5mm fireline plasterboard on MF hangers creating 250mm void with 50mm mineral wool in void

Partition area, m^2:	26.7
Source room volume, m^3:	64.1
Receiving room volume, m^3:	64.1

Frequency, Hz	DnT, dB
100	43.0
125	52.0
160	51.3
200	54.3
250	46.6
315	51.7
400	56.2
500	>= 64.1*
630	>= 73.6*
800	75.4
1000	74.8
1250	79.9
1600	>= 82.8*
2000	82.8
2500	82.0
3150	82.8

* approaching or at the limit for measurement

DnT,w (C;Ctr):	**64 (-2, -7) dB**
Measured, DnT,w + Ctr:	**57 dB**
Criterion, DnT,w + Ctr:	**50 dB**
Test result:	**Pass**



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FIELD MEASUREMENT OF AIRBORNE SOUND INSULATION BETWEEN ROOMS

Standardised level difference DnT, w according to ISO 140-4

Evaluation based on field measurement results obtained in 1/3-octave bands by an engineering method

Project:	Bacton Clock C	**Project no:**	13-0069-0
		Test number:	1125064209
Source room:	4F Flat 16, bedroom	**Test date:**	12-Jan-2017
		Analysis date:	13-Jan-2017
Reciever room:	3F Flat 12, bedroom	**Tester:**	JS,SR,CM,PT

Test Partition: Engineered oak flooring on resilient layer on 250mm concrete slab, with ceiling below comprising one layer of 12.5mm fireline plasterboard on MF hangers creating 250mm void with 50mm mineral wool in void

Partition area, m^2: 13.0

Source room volume, m^3: 31.2

Receiving room volume, m^3: 31.2

Frequency, Hz	DnT, dB
100	>= 45.7*
125	52.5
160	>= 51.0*
200	55.0
250	>= 55.3*
315	>= 54.8*
400	>= 57.0*
500	>= 66.0*
630	>= 75.2*
800	>= 78.0*
1000	>= 78.9*
1250	>= 82.4*
1600	>= 86.1*
2000	>= 87.6*
2500	>= 87.2*
3150	>= 89.4*

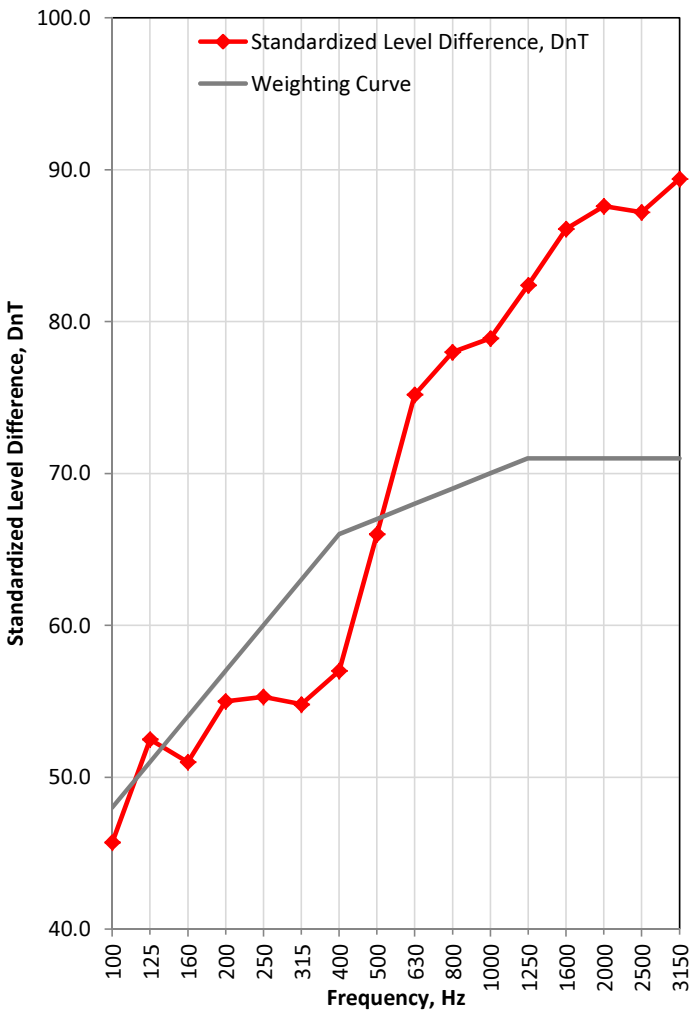
* approaching or at the limit for measurement

DnT,w (C;Ctr): **67 (-2, -6) dB**

Measured, DnT,w + Ctr: **61 dB**

Criterion, DnT,w + Ctr: **50 dB**

Test result: **Pass**



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FIELD MEASUREMENT OF AIRBORNE SOUND INSULATION BETWEEN ROOMS

Standardised level difference DnT, w according to ISO 140-4

Evaluation based on field measurement results obtained in 1/3-octave bands by an engineering method

Project:	Bacton Clock C	**Project no:**	13-0069-0
		Test number:	1125064210
Source room:	4F Flat 17, living	**Test date:**	12-Jan-2017
		Analysis date:	13-Jan-2017
Reciever room:	3F Flat 13, living	**Tester:**	JS,SR,CM,PT

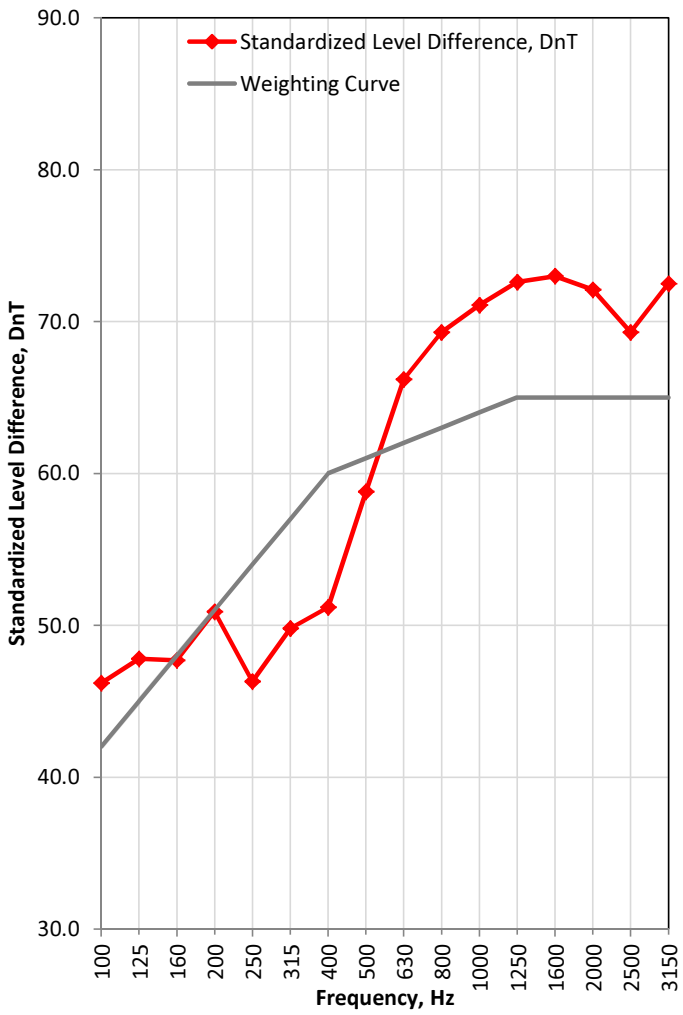
Test Partition: Engineered oak flooring on resilient layer on 250mm concrete slab, with ceiling below comprising one layer of 12.5mm fireline plasterboard on MF hangers creating 250mm void with 50mm mineral wool in void

Partition area, m^2:	26.9
Source room volume, m^3:	64.6
Receiving room volume, m^3:	64.6

Frequency, Hz	DnT, dB
100	46.2
125	47.8
160	47.7
200	50.9
250	46.3
315	49.8
400	51.2
500	58.8
630	66.2
800	>= 69.3*
1000	>= 71.1*
1250	72.6
1600	73.0
2000	72.1
2500	69.3
3150	72.5

* approaching or at the limit for measurement

DnT,w (C;Ctr):	**61 (-1, -5) dB**
Measured, DnT,w + Ctr:	**56 dB**
Criterion, DnT,w + Ctr:	**50 dB**
Test result:	**Pass**



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FIELD MEASUREMENT OF AIRBORNE SOUND INSULATION BETWEEN ROOMS

Standardised level difference DnT, w according to ISO 140-4

Evaluation based on field measurement results obtained in 1/3-octave bands by an engineering method

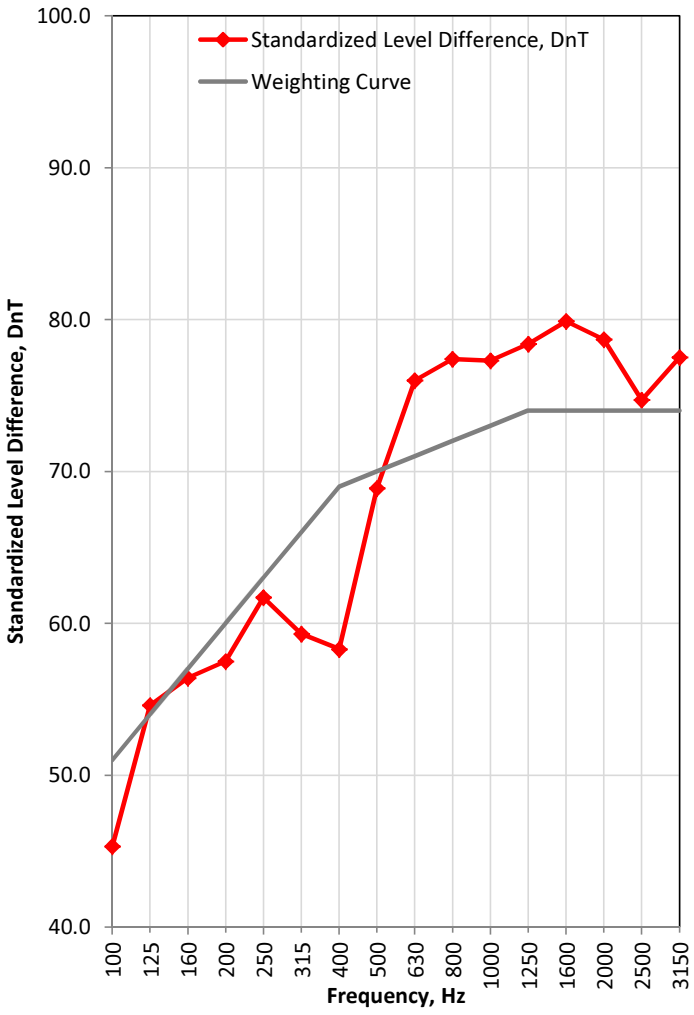
Project:	Bacton Clock C	**Project no:**	13-0069-0
		Test number:	1125064211
Source room:	3F Flat 12, bedroom	**Test date:**	12-Jan-2017
		Analysis date:	13-Jan-2017
Reciever room:	3F Flat 13, bedroom	**Tester:**	JS,SR,CM,PT

Test Partition: Twin 70mm stud frame with two layers 12.5mm plasterboard of minimum density 20kg/m2on either side, and additional layer of 18mm support ply within frame. 50mm mineral wool within each stud frame and 100mm mineral wool in void between two stud frames.

Partition area, m^2:	8.4
Source room volume, m^3:	28.8
Receiving room volume, m^3:	28.1

Frequency, Hz	DnT, dB
100	45.3
125	54.6
160	56.4
200	57.5
250	61.7
315	59.3
400	58.3
500	68.9
630	>= 76.0*
800	>= 77.4*
1000	>= 77.3*
1250	>= 78.4*
1600	>= 79.9*
2000	>= 78.7*
2500	>= 74.7*
3150	>= 77.5*

* approaching or at the limit for measurement



DnT,w (C;Ctr):	**70 (-2, -8) dB**
Measured, DnT,w + Ctr:	**62 dB**
Criterion, DnT,w + Ctr:	**50 dB**
Test result:	**Pass**

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FIELD MEASUREMENT OF AIRBORNE SOUND INSULATION BETWEEN ROOMS

Standardised level difference DnT, w according to ISO 140-4

Evaluation based on field measurement results obtained in 1/3-octave bands by an engineering method

Project:	Bacton Clock C	**Project no:**	13-0069-0
		Test number:	1125064212
Source room:	3F Flat 12, living	**Test date:**	12-Jan-2017
		Analysis date:	13-Jan-2017
Reciever room:	3F Flat 11, living	**Tester:**	JS,SR,CM,PT

Test Partition: Twin 70mm stud frame with two layers 12.5mm plasterboard of minimum density 20kg/m2on either side, and additional layer of 18mm support ply within frame. 50mm mineral wool within each stud frame and 100mm mineral wool in void between two stud frames.

Partition area, m^2: 6.0

Source room volume, m^3: 64.8

Receiving room volume, m^3: 55.2

Frequency, Hz	DnT, dB
100	38.0
125	53.5
160	53.9
200	56.4
250	50.9
315	51.1
400	49.8
500	62.2
630	69.3
800	71.3
1000	>= 72.2*
1250	>= 75.8*
1600	>= 76.7*
2000	>= 75.2*
2500	>= 72.6*
3150	>= 72.3*

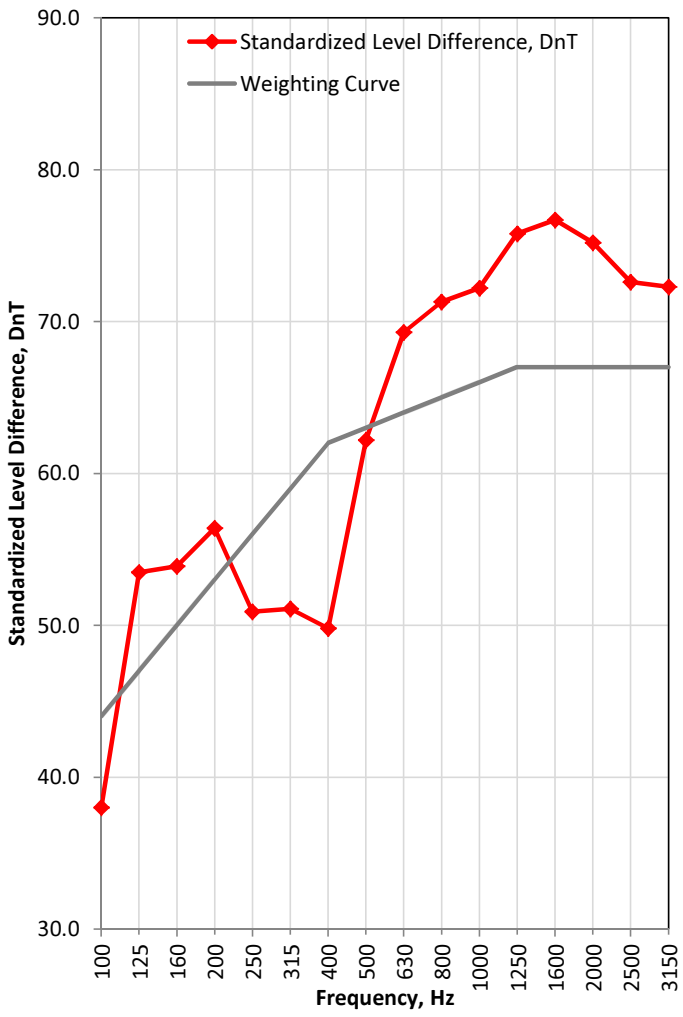
* approaching or at the limit for measurement

DnT,w (C;Ctr): 63 (-3, -8) dB

Measured, DnT,w + Ctr: 55 dB

Criterion, DnT,w + Ctr: 50 dB

Test result: Pass



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FIELD MEASUREMENT OF AIRBORNE SOUND INSULATION BETWEEN ROOMS

Standardised level difference DnT, w according to ISO 140-4

Evaluation based on field measurement results obtained in 1/3-octave bands by an engineering method

Project:	Bacton Clock C	**Project no:**	13-0069-0
		Test number:	1125064213
Source room:	3F Flat 11, bedroom	**Test date:**	12-Jan-2017
		Analysis date:	13-Jan-2017
Reciever room:	3F Flat 10, bedroom	**Tester:**	JS,SR,CM,PT

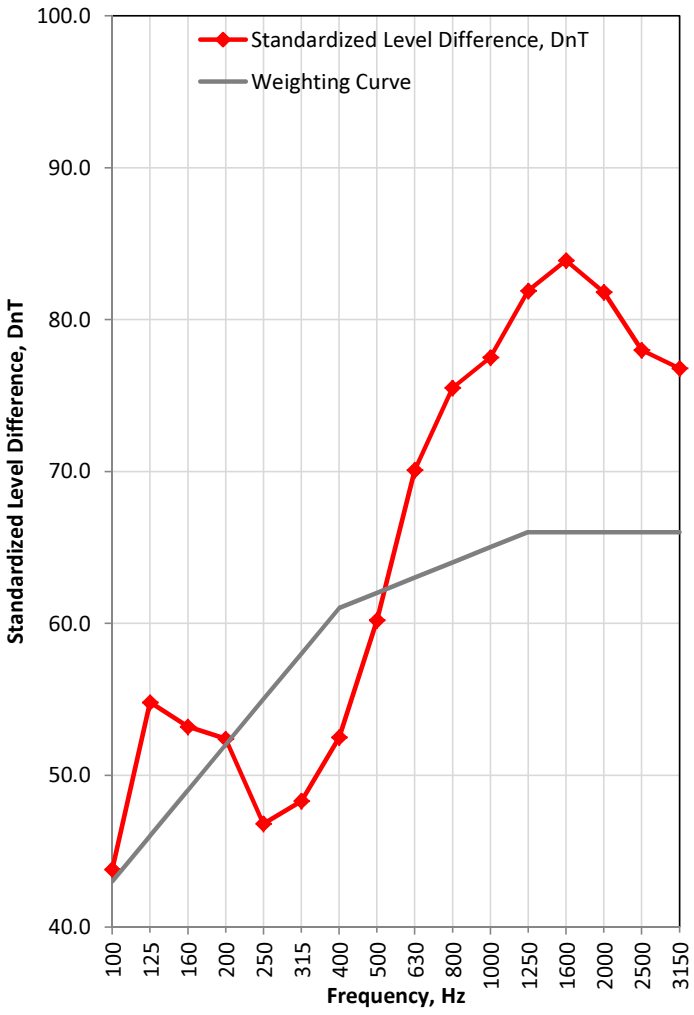
Test Partition: Twin 70mm stud frame with two layers 12.5mm plasterboard of minimum density 20kg/m2on either side, and additional layer of 18mm support ply within frame. 50mm mineral wool within each stud frame and 100mm mineral wool in void between two stud frames.

Partition area, m^2:	6.0
Source room volume, m^3:	32.9
Receiving room volume, m^3:	28.8

Frequency, Hz	DnT, dB
100	43.8
125	>= 54.8*
160	>= 53.2*
200	>= 52.4*
250	46.8
315	48.3
400	52.5
500	60.2
630	>= 70.1*
800	>= 75.5*
1000	>= 77.5*
1250	>= 81.9*
1600	>= 83.9*
2000	>= 81.8*
2500	>= 78.0*
3150	>= 76.8*

* approaching or at the limit for measurement

DnT,w (C;Ctr):	**62 (-2, -6) dB**
Measured, DnT,w + Ctr:	**56 dB**
Criterion, DnT,w + Ctr:	**50 dB**
Test result:	**Pass**



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FIELD MEASUREMENT OF AIRBORNE SOUND INSULATION BETWEEN ROOMS

Standardised level difference DnT, w according to ISO 140-4

Evaluation based on field measurement results obtained in 1/3-octave bands by an engineering method

Project:	Bacton Clock C	**Project no:**	13-0069-0
		Test number:	1125064214
Source room:	2F Flat 7, bedroom	**Test date:**	12-Jan-2017
		Analysis date:	13-Jan-2017
Reciever room:	2F Flat 6, bedroom	**Tester:**	JS,SR,CM,PT

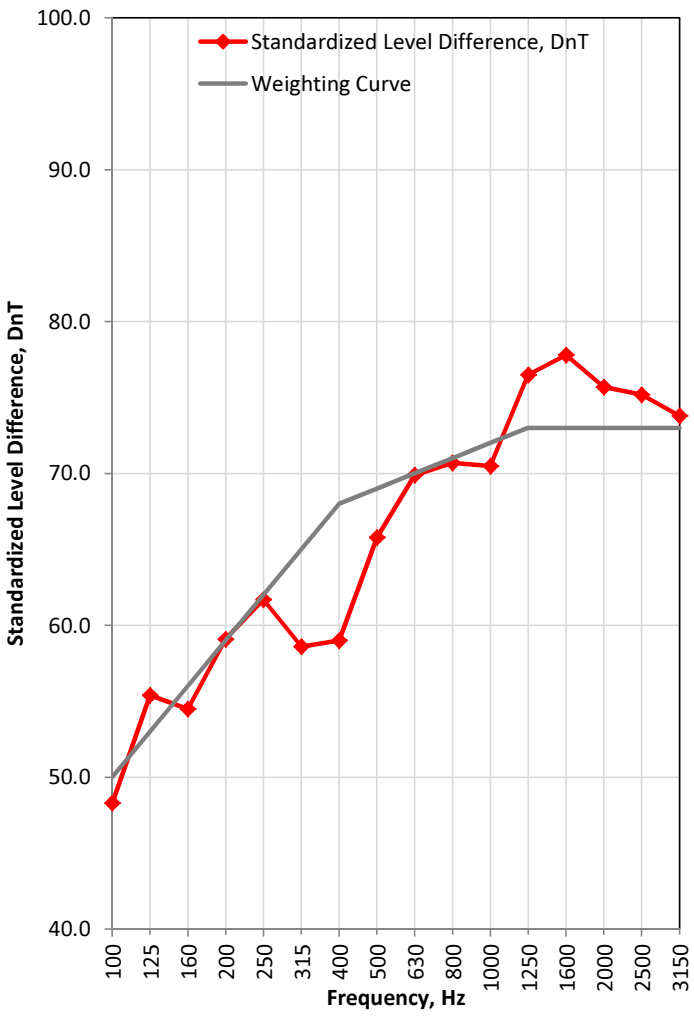
Test Partition: Twin 70mm stud frame with two layers 12.5mm plasterboard of minimum density 20kg/m2on either side, and additional layer of 18mm support ply within frame. 50mm mineral wool within each stud frame and 100mm mineral wool in void between two stud frames.

Partition area, m^2:	6.0
Source room volume, m^3:	32.9
Receiving room volume, m^3:	28.8

Frequency, Hz	DnT, dB
100	48.3
125	55.4
160	54.5
200	59.1
250	61.7
315	58.6
400	59.0
500	65.8
630	>= 69.9*
800	>= 70.7*
1000	>= 70.5*
1250	>= 76.5*
1600	>= 77.8*
2000	>= 75.7*
2500	>= 75.2*
3150	>= 73.8*

* approaching or at the limit for measurement

DnT,w (C;Ctr):	**69 (-2, -6) dB**
Measured, DnT,w + Ctr:	**63 dB**
Criterion, DnT,w + Ctr:	**50 dB**
Test result:	**Pass**



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FIELD MEASUREMENT OF AIRBORNE SOUND INSULATION BETWEEN ROOMS

Standardised level difference DnT, w according to ISO 140-4

Evaluation based on field measurement results obtained in 1/3-octave bands by an engineering method

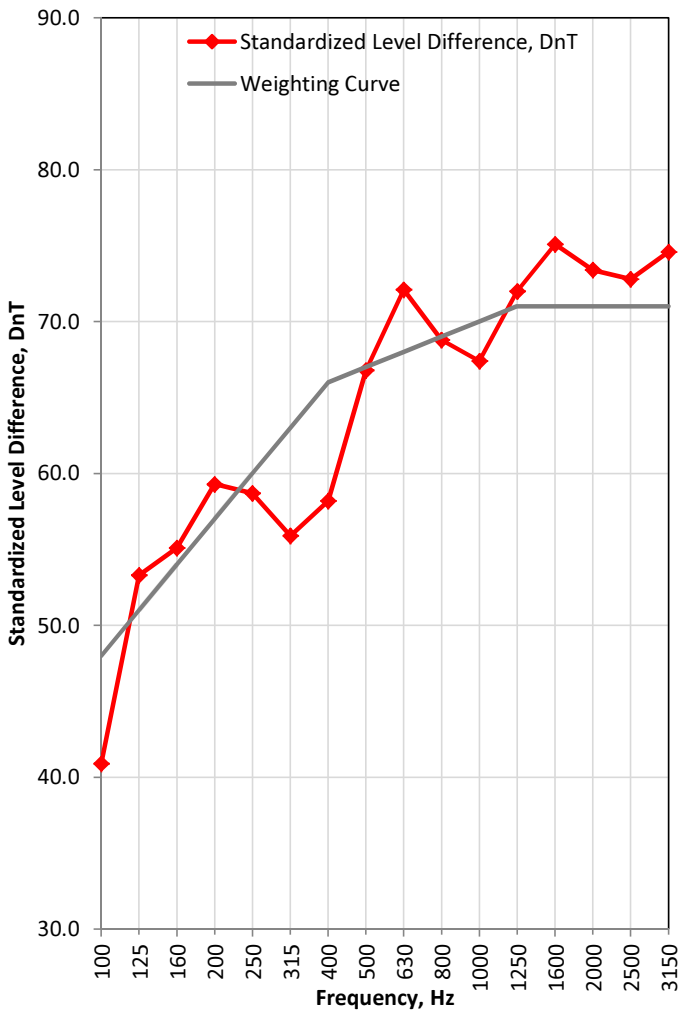
Project:	Bacton Clock C	**Project no:**	13-0069-0
		Test number:	1125064215
Source room:	2F Flat 8, living	**Test date:**	12-Jan-2017
		Analysis date:	13-Jan-2017
Reciever room:	2F Flat 7, living	**Tester:**	JS,SR,CM,PT

Test Partition: Twin 70mm stud frame with two layers 12.5mm plasterboard of minimum density 20kg/m2on either side, and additional layer of 18mm support ply within frame. 50mm mineral wool within each stud frame and 100mm mineral wool in void between two stud frames.

Partition area, m^2:	6.0
Source room volume, m^3:	64.8
Receiving room volume, m^3:	55.2

Frequency, Hz	DnT, dB
100	40.9
125	53.3
160	55.1
200	59.3
250	58.7
315	55.9
400	58.2
500	>= 66.8*
630	>= 72.1*
800	>= 68.8*
1000	>= 67.4*
1250	>= 72.0*
1600	>= 75.1*
2000	73.4
2500	72.8
3150	74.6

* approaching or at the limit for measurement



DnT,w (C;Ctr):	**67 (-2, -8) dB**
Measured, DnT,w + Ctr:	**59 dB**
Criterion, DnT,w + Ctr:	**50 dB**
Test result:	**Pass**

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FIELD MEASUREMENT OF AIRBORNE SOUND INSULATION BETWEEN ROOMS

Standardised level difference DnT, w according to ISO 140-4

Evaluation based on field measurement results obtained in 1/3-octave bands by an engineering method

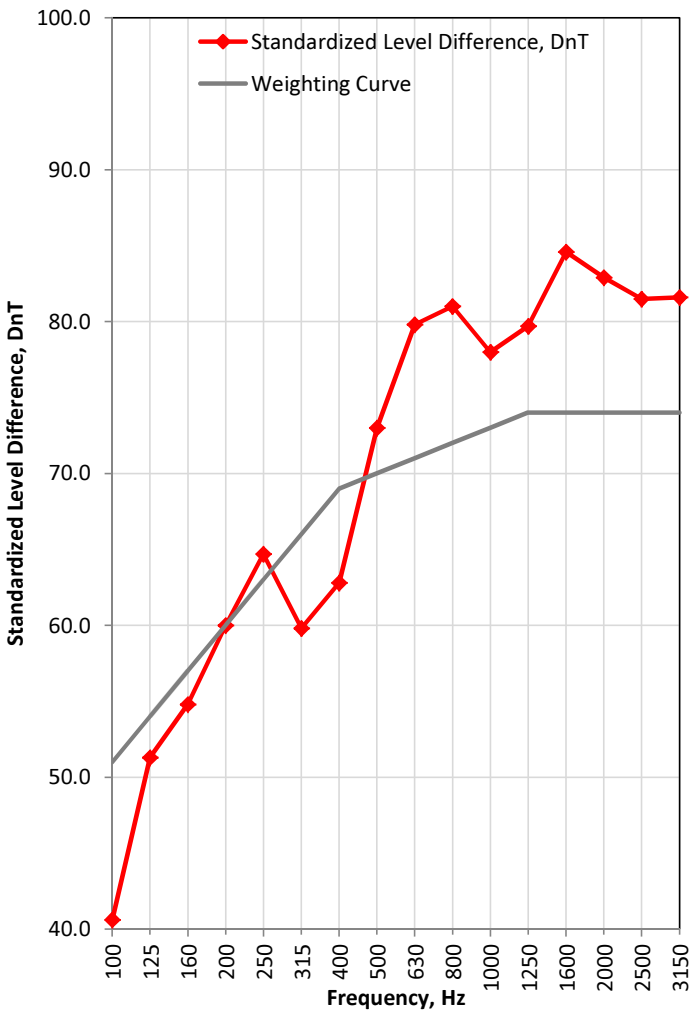
Project:	Bacton Clock C	**Project no:**	13-0069-0
		Test number:	1125064216
Source room:	2F Flat 8, bedroom	**Test date:**	12-Jan-2017
		Analysis date:	13-Jan-2017
Reciever room:	2F Flat 9, bedroom	**Tester:**	JS,SR,CM,PT

Test Partition: Twin 70mm stud frame with two layers 12.5mm plasterboard of minimum density 20kg/m2on either side, and additional layer of 18mm support ply within frame. 50mm mineral wool within each stud frame and 100mm mineral wool in void between two stud frames.

Partition area, m^2:	8.4
Source room volume, m^3:	28.8
Receiving room volume, m^3:	28.1

Frequency, Hz	DnT, dB
100	40.6
125	51.3
160	54.8
200	60.0
250	64.7
315	59.8
400	62.8
500	73.0
630	>= 79.8*
800	>= 81.0*
1000	>= 78.0*
1250	>= 79.7*
1600	>= 84.6*
2000	>= 82.9*
2500	>= 81.5*
3150	>= 81.6*

* approaching or at the limit for measurement



DnT,w (C;Ctr): 70 (-3, -10) dB

Measured, DnT,w + Ctr: 60 dB

Criterion, DnT,w + Ctr: 50 dB

Test result: Pass

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ANC Registration Number: 112

Date: 13-Jan-2017

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FIELD MEASUREMENT OF AIRBORNE SOUND INSULATION BETWEEN ROOMS

Standardised level difference DnT, w according to ISO 140-4

Evaluation based on field measurement results obtained in 1/3-octave bands by an engineering method

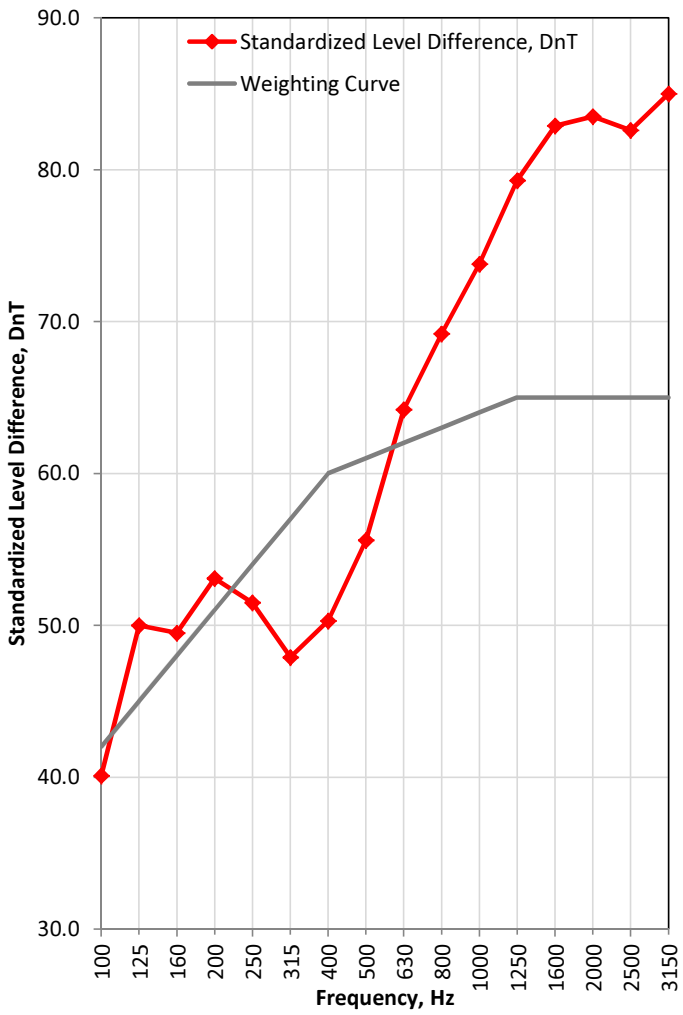
Project:	Bacton Clock C	**Project no:**	13-0069-0
		Test number:	1125064217
Source room:	5F Flat 19, bedroom	**Test date:**	12-Jan-2017
		Analysis date:	13-Jan-2017
Reciever room:	5F Flat 18, bedroom	**Tester:**	JS,SR,CM,PT

Test Partition: Twin 70mm stud frame with two layers 12.5mm plasterboard of minimum density 20kg/m2on either side, and additional layer of 18mm support ply within frame. 50mm mineral wool within each stud frame and 100mm mineral wool in void between two stud frames.

Partition area, m^2:	6.7
Source room volume, m^3:	35.8
Receiving room volume, m^3:	25.7

Frequency, Hz	DnT, dB
100	40.1
125	50.0
160	49.5
200	53.1
250	51.5
315	47.9
400	50.3
500	55.6
630	64.2
800	69.2
1000	73.8
1250	>= 79.3*
1600	82.9
2000	83.5
2500	82.6
3150	85.0

* approaching or at the limit for measurement



DnT,w (C;Ctr):	**61 (-2, -6) dB**
Measured, DnT,w + Ctr:	**55 dB**
Criterion, DnT,w + Ctr:	**50 dB**
Test result:	**Pass**

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FIELD MEASUREMENT OF AIRBORNE SOUND INSULATION BETWEEN ROOMS

Standardised level difference DnT, w according to ISO 140-4

Evaluation based on field measurement results obtained in 1/3-octave bands by an engineering method

Project:	Bacton Clock C	**Project no:**	13-0069-0
		Test number:	1125064218
Source room:	4F Flat 16, living	**Test date:**	12-Jan-2017
		Analysis date:	13-Jan-2017
Reciever room:	4F Flat 15, living	**Tester:**	JS,SR,CM,PT

Test Partition: Twin 70mm stud frame with two layers 12.5mm plasterboard of minimum density 20kg/m2on either side, and additional layer of 18mm support ply within frame. 50mm mineral wool within each stud frame and 100mm mineral wool in void between two stud frames.

Partition area, m^2: 5.8

Source room volume, m^3: 64.1

Receiving room volume, m^3: 54.5

Frequency, Hz	DnT, dB
100	39.3
125	47.7
160	53.2
200	56.1
250	52.2
315	>= 53.0*
400	55.4
500	62.3
630	67.9
800	71.6
1000	>= 73.4*
1250	74.3
1600	75.2
2000	75.0
2500	72.9
3150	73.1

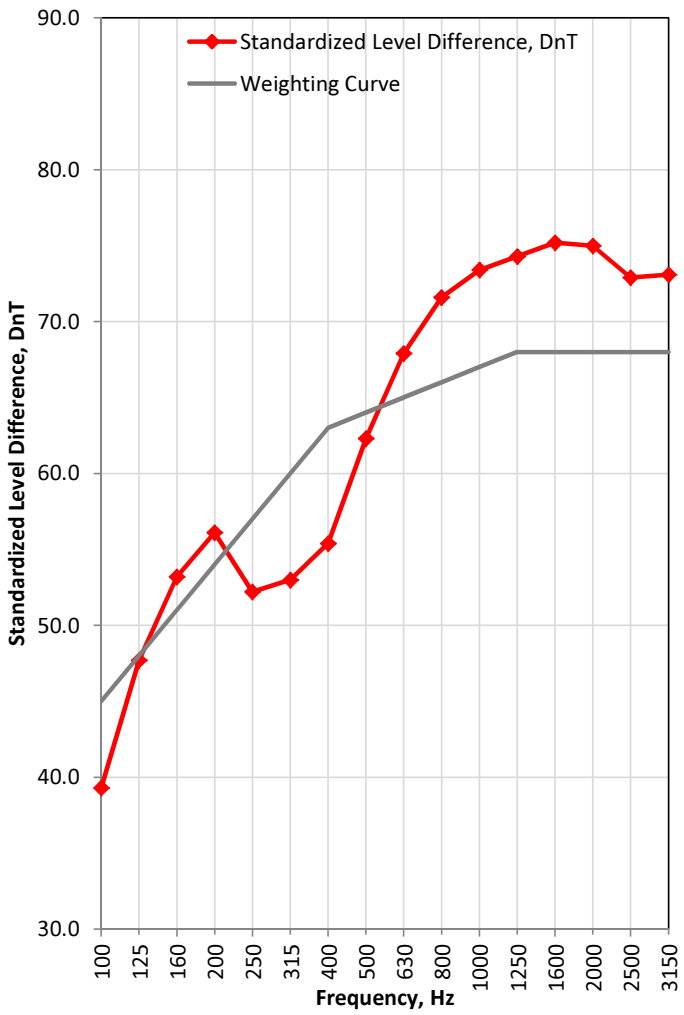
* approaching or at the limit for measurement

DnT,w (C;Ctr): 64 (-2, -7) dB

Measured, DnT,w + Ctr: 57 dB

Criterion, DnT,w + Ctr: 50 dB

Test result: Pass



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Checked by:

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Date: 13-Jan-2017

Sustainable Acoustics

FIELD MEASUREMENT OF AIRBORNE SOUND INSULATION BETWEEN ROOMS

Standardised level difference DnT, w according to ISO 140-4

Evaluation based on field measurement results obtained in 1/3-octave bands by an engineering method

Project:	Bacton Clock C	**Project no:**	13-0069-0
		Test number:	1125064219
Source room:	4F Flat 16, bedroom	**Test date:**	12-Jan-2017
		Analysis date:	13-Jan-2017
Reciever room:	4F Flat 17, bedroom	**Tester:**	JS,SR,CM,PT

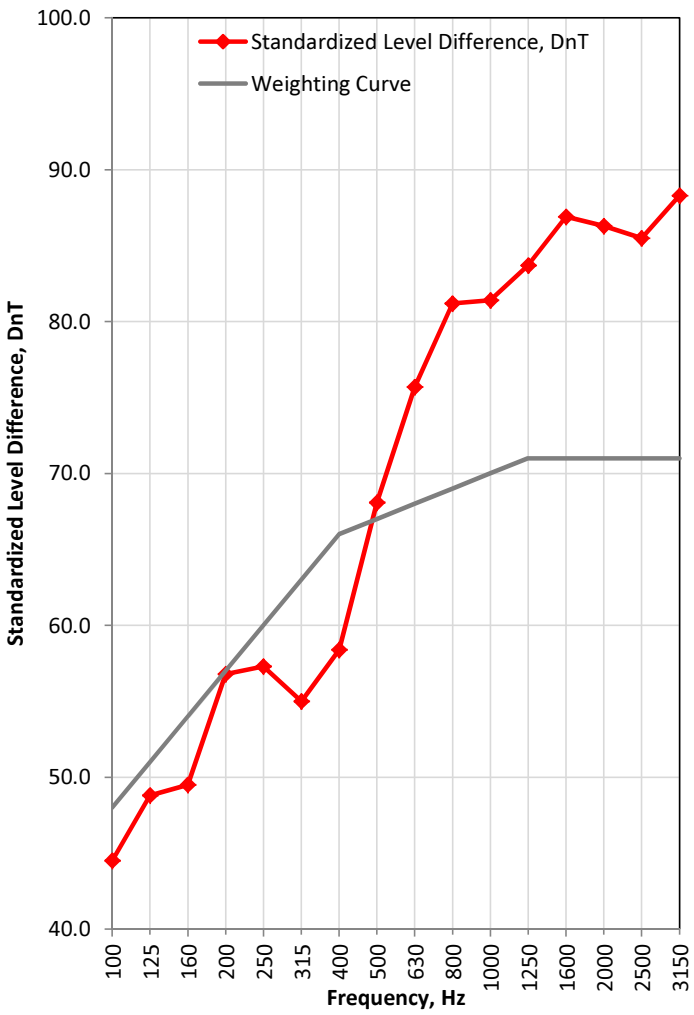
Test Partition: Twin 70mm stud frame with two layers 12.5mm plasterboard of minimum density 20kg/m2on either side, and additional layer of 18mm support ply within frame. 50mm mineral wool within each stud frame and 100mm mineral wool in void between two stud frames.

Partition area, m^2:	9.1
Source room volume, m^3:	31.2
Receiving room volume, m^3:	29.5

Frequency, Hz	DnT, dB
100	44.5
125	48.8
160	49.5
200	56.8
250	57.3
315	55.0
400	58.4
500	68.1
630	75.7
800	>= 81.2*
1000	>= 81.4*
1250	>= 83.7*
1600	>= 86.9*
2000	>= 86.3*
2500	>= 85.5*
3150	>= 88.3*

* approaching or at the limit for measurement

DnT,w (C;Ctr):	**67 (-2, -7) dB**
Measured, DnT,w + Ctr:	**60 dB**
Criterion, DnT,w + Ctr:	**50 dB**
Test result:	**Pass**



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FIELD MEASUREMENT OF AIRBORNE SOUND INSULATION BETWEEN ROOMS

Standardised level difference DnT, w according to ISO 140-4

Evaluation based on field measurement results obtained in 1/3-octave bands by an engineering method

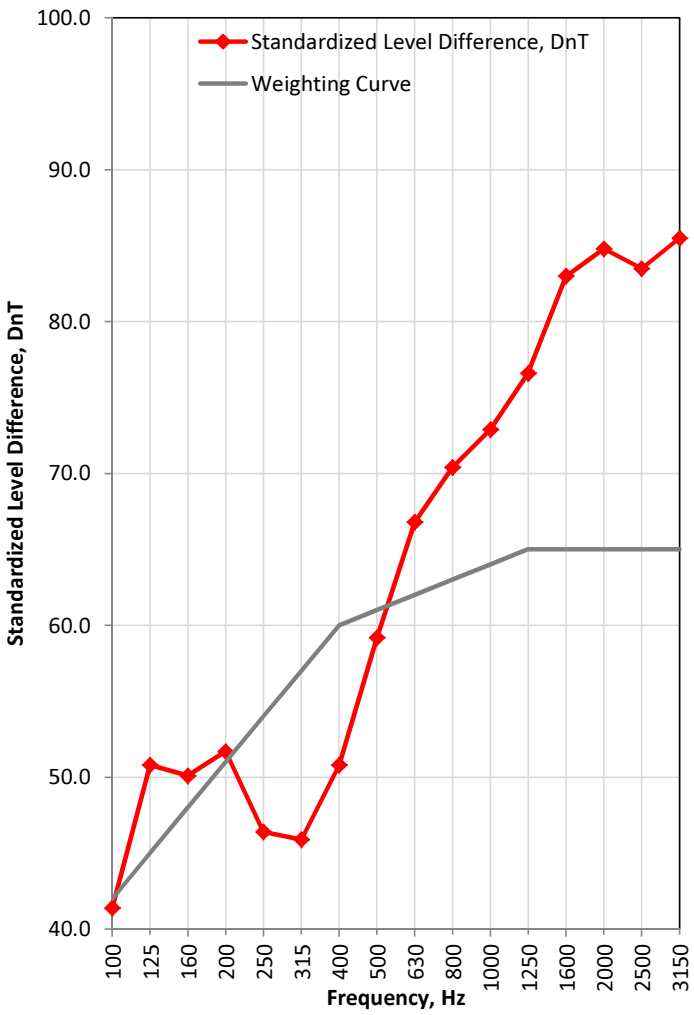
Project:	Bacton Clock C	**Project no:**	13-0069-0
		Test number:	1125064220
Source room:	4F Flat 15, bedroom	**Test date:**	12-Jan-2017
		Analysis date:	13-Jan-2017
Reciever room:	4F Flat 14, bedroom	**Tester:**	JS,SR,CM,PT

Test Partition: Twin 70mm stud frame with two layers 12.5mm plasterboard of minimum density 20kg/m2on either side, and additional layer of 18mm support ply within frame. 50mm mineral wool within each stud frame and 100mm mineral wool in void between two stud frames.

Partition area, m^2:	6.7
Source room volume, m^3:	35.0
Receiving room volume, m^3:	25.9

Frequency, Hz	DnT, dB
100	41.4
125	50.8
160	50.1
200	51.7
250	46.4
315	45.9
400	50.8
500	59.2
630	66.8
800	>= 70.4*
1000	>= 72.9*
1250	>= 76.6*
1600	>= 83.0*
2000	>= 84.8*
2500	>= 83.5*
3150	>= 85.5*

* approaching or at the limit for measurement



DnT,w (C;Ctr):	**61 (-2, -6) dB**
Measured, DnT,w + Ctr:	**55 dB**
Criterion, DnT,w + Ctr:	**50 dB**
Test result:	**Pass**

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FIELD MEASUREMENT OF IMPACT SOUND INSULATION OF FLOORS

Standardised impact sound pressure level according to ISO 140-7

Evaluation based on field measurement results obtained in 1/3-octave bands by an engineering method

Project:	Bacton Clock C	**Project no:**	13-0069-0
		Test number:	1125064221
Source room:	3F Flat 10, bedroom	**Test date:**	12-Jan-2017
		Analysis date:	13-Jan-2017
Reciever room:	2F Flat 6, bedroom	**Tester:**	JS,SR,CM,PT

Test Partition: Engineered oak flooring on resilient layer on 250mm concrete slab, with ceiling below comprising one layer of 12.5mm fireline plasterboard on MF hangers creating 250mm void with 50mm mineral wool in void

Partition area, m^2: 12.0

Receiving room volume, m^3: 28.8

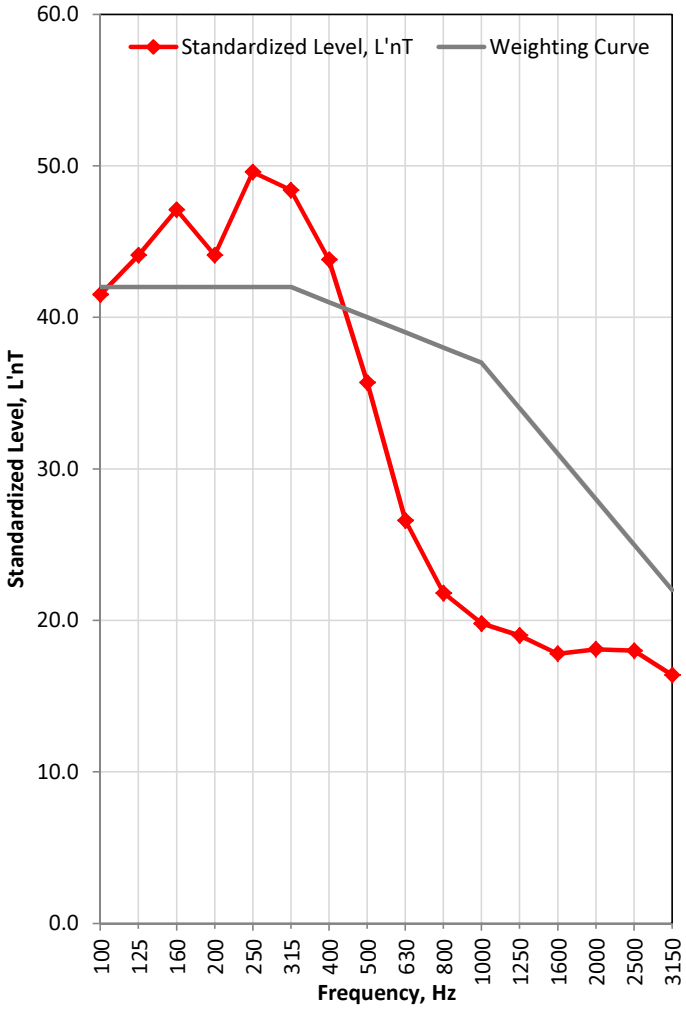
Frequency, Hz	L'nT, dB
100	<= 41.5*
125	44.1
160	47.1
200	44.1
250	49.6
315	48.4
400	43.8
500	35.7
630	26.6
800	<= 21.8*
1000	<= 19.8*
1250	<= 19.0*
1600	<= 17.8*
2000	<= 18.1*
2500	<= 18.0*
3150	<= 16.4*

* approaching or at the limit for measurement

Measured, L'nT,w: **40 dB**

Criterion, L'nT,w: **57 dB**

Test result: **Pass**



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FIELD MEASUREMENT OF IMPACT SOUND INSULATION OF FLOORS

Standardised impact sound pressure level according to ISO 140-7

Evaluation based on field measurement results obtained in 1/3-octave bands by an engineering method

Project:	Bacton Clock C	**Project no:**	13-0069-0
		Test number:	1125064222
Source room:	3F Flat 11, living	**Test date:**	12-Jan-2017
		Analysis date:	13-Jan-2017
Reciever room:	2F Flat 7, living	**Tester:**	JS,SR,CM,PT

Test Partition: Engineered oak flooring on resilient layer on 250mm concrete slab, with ceiling below comprising one layer of 12.5mm fireline plasterboard on MF hangers creating 250mm void with 50mm mineral wool in void

Partition area, m^2: 23.0

Receiving room volume, m^3: 55.2

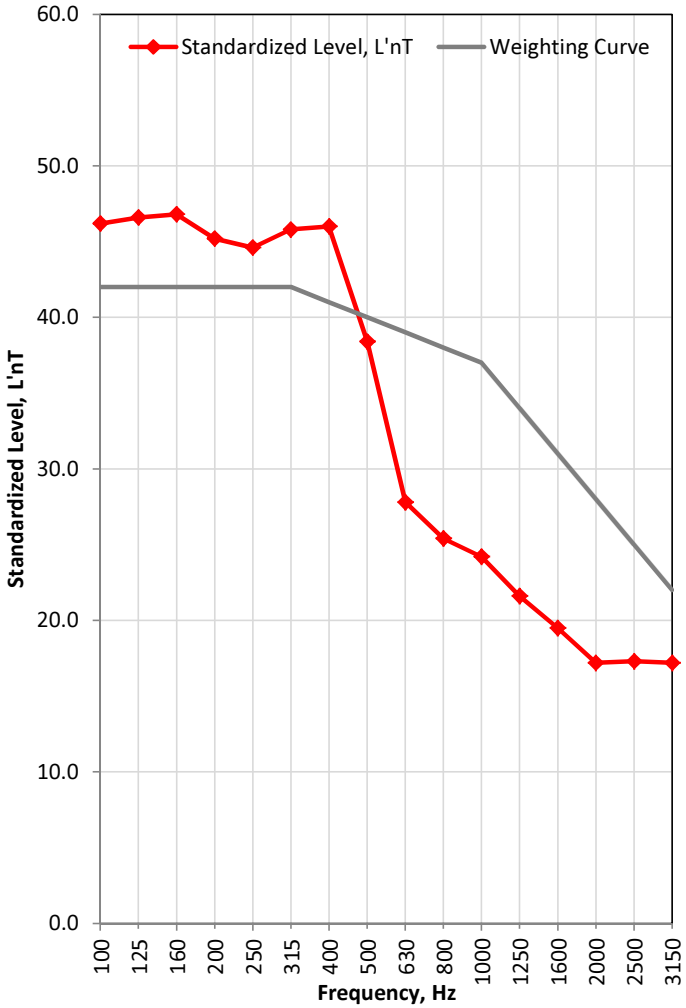
Frequency, Hz	L'nT, dB
100	46.2
125	46.6
160	46.8
200	45.2
250	44.6
315	45.8
400	46.0
500	38.4
630	<= 27.8*
800	<= 25.4*
1000	<= 24.2*
1250	<= 21.6*
1600	<= 19.5*
2000	<= 17.2*
2500	<= 17.3*
3150	<= 17.2*

* approaching or at the limit for measurement

Measured, L'nT,w: **40 dB**

Criterion, L'nT,w: **57 dB**

Test result: **Pass**



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FIELD MEASUREMENT OF IMPACT SOUND INSULATION OF FLOORS

Standardised impact sound pressure level according to ISO 140-7

Evaluation based on field measurement results obtained in 1/3-octave bands by an engineering method

Project:	Bacton Clock C	**Project no:**	13-0069-0
		Test number:	1125064223
Source room:	2F Flat 9, bedroom	**Test date:**	12-Jan-2017
		Analysis date:	13-Jan-2017
Reciever room:	1F Flat 5, bedroom	**Tester:**	JS,SR,CM,PT

Test Partition: Engineered oak flooring on resilient layer on 250mm concrete slab, with ceiling below comprising one layer of 12.5mm fireline plasterboard on MF hangers creating 250mm void with 50mm mineral wool in void

Partition area, m^2: 11.7

Receiving room volume, m^3: 28.1

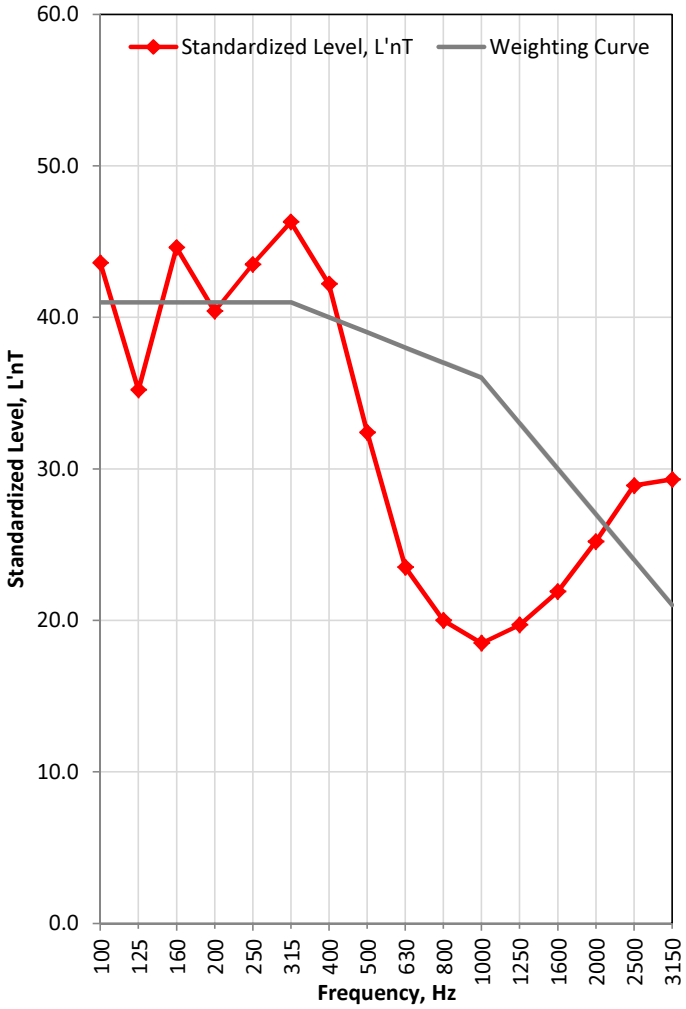
Frequency, Hz	L'nT, dB
100	<= 43.6*
125	<= 35.2*
160	44.6
200	40.4
250	43.5
315	46.3
400	42.2
500	32.4
630	<= 23.5*
800	<= 20.0*
1000	<= 18.5*
1250	<= 19.7*
1600	<= 21.9*
2000	<= 25.2*
2500	<= 28.9*
3150	<= 29.3*

* approaching or at the limit for measurement

Measured, L'nT,w: **39 dB**

Criterion, L'nT,w: **57 dB**

Test result: **Pass**



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FIELD MEASUREMENT OF IMPACT SOUND INSULATION OF FLOORS

Standardised impact sound pressure level according to ISO 140-7

Evaluation based on field measurement results obtained in 1/3-octave bands by an engineering method

Project:	Bacton Clock C	**Project no:**	13-0069-0
		Test number:	1125064224
Source room:	2F Flat 8, bedroom	**Test date:**	12-Jan-2017
		Analysis date:	13-Jan-2017
Reciever room:	1F Flat 4, bedroom	**Tester:**	JS,SR,CM,PT

Test Partition: Engineered oak flooring on resilient layer on 250mm concrete slab, with ceiling below comprising one layer of 12.5mm fireline plasterboard on MF hangers creating 250mm void with 50mm mineral wool in void

Partition area, m^2: 12.0

Receiving room volume, m^3: 28.8

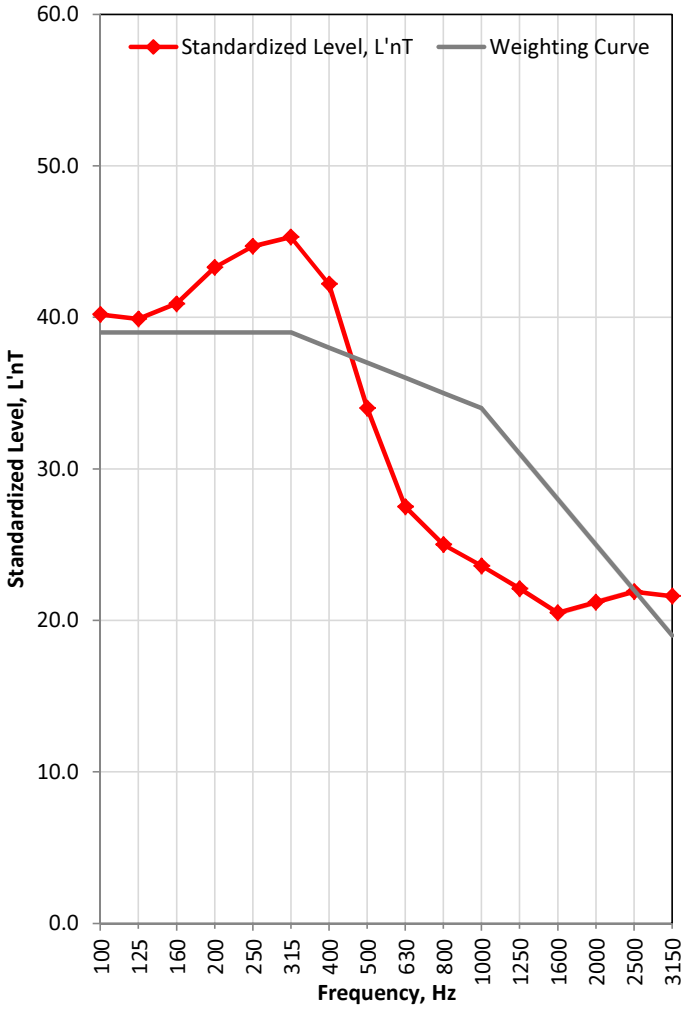
Frequency, Hz	L'nT, dB
100	<= 40.2*
125	<= 39.9*
160	<= 40.9*
200	<= 43.3*
250	<= 44.7*
315	<= 45.3*
400	<= 42.2*
500	<= 34.0*
630	<= 27.5*
800	<= 25.0*
1000	<= 23.6*
1250	<= 22.1*
1600	<= 20.5*
2000	<= 21.2*
2500	<= 21.9*
3150	<= 21.6*

* approaching or at the limit for measurement

Measured, L'nT,w: **37 dB**

Criterion, L'nT,w: **57 dB**

Test result: **Pass**



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FIELD MEASUREMENT OF IMPACT SOUND INSULATION OF FLOORS

Standardised impact sound pressure level according to ISO 140-7

Evaluation based on field measurement results obtained in 1/3-octave bands by an engineering method

Project:	Bacton Clock C	**Project no:**	13-0069-0
		Test number:	1125064225
Source room:	2F Flat 6, living	**Test date:**	12-Jan-2017
		Analysis date:	13-Jan-2017
Reciever room:	1F Flat 3, living	**Tester:**	JS,SR,CM,PT

Test Partition: Engineered oak flooring on resilient layer on 250mm concrete slab, with ceiling below comprising one layer of 12.5mm fireline plasterboard on MF hangers creating 250mm void with 50mm mineral wool in void

Partition area, m^2: 12.0

Receiving room volume, m^3: 28.8

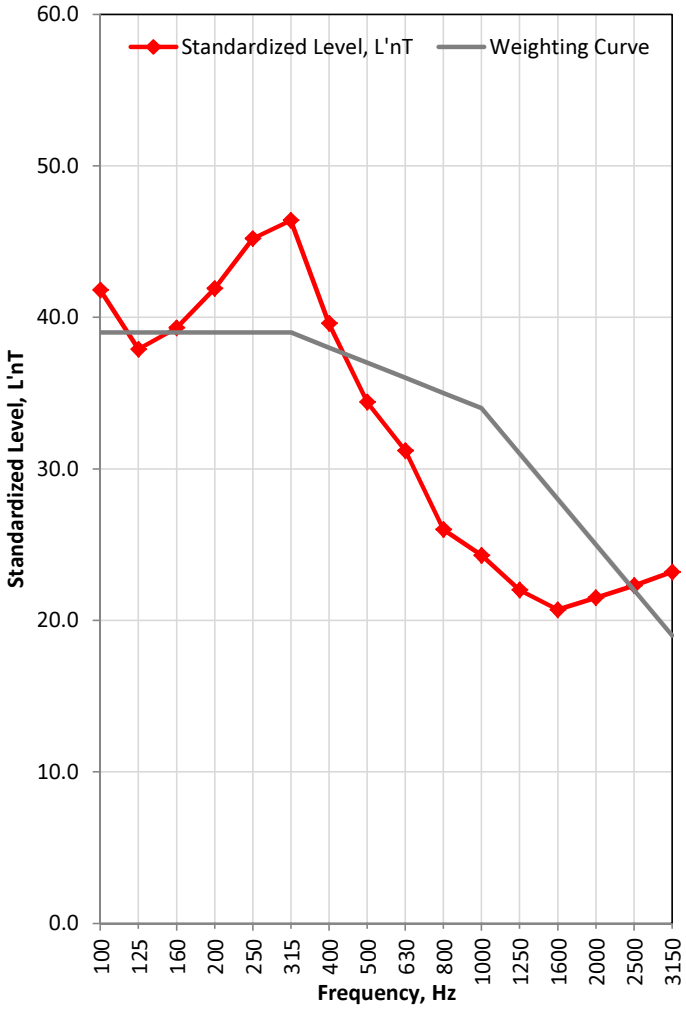
Frequency, Hz	L'nT, dB
100	<= 41.8*
125	<= 37.9*
160	<= 39.3*
200	41.9
250	45.2
315	46.4
400	39.6
500	<= 34.4*
630	<= 31.2*
800	<= 26.0*
1000	<= 24.3*
1250	<= 22.0*
1600	<= 20.7*
2000	<= 21.5*
2500	<= 22.3*
3150	<= 23.2*

* approaching or at the limit for measurement

Measured, L'nT,w: **37 dB**

Criterion, L'nT,w: **57 dB**

Test result: **Pass**



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FIELD MEASUREMENT OF IMPACT SOUND INSULATION OF FLOORS

Standardised impact sound pressure level according to ISO 140-7

Evaluation based on field measurement results obtained in 1/3-octave bands by an engineering method

Project:	Bacton Clock C	**Project no:**	13-0069-0
		Test number:	1125064226
Source room:	6F Flat 20, bedroom	**Test date:**	12-Jan-2017
		Analysis date:	13-Jan-2017
Reciever room:	5F Flat 18, bedroom	**Tester:**	JS,SR,CM,PT

Test Partition: Engineered oak flooring on resilient layer on 250mm concrete slab, with ceiling below comprising one layer of 12.5mm fireline plasterboard on MF hangers creating 250mm void with 50mm mineral wool in void

Partition area, m^2: 10.7

Receiving room volume, m^3: 25.7

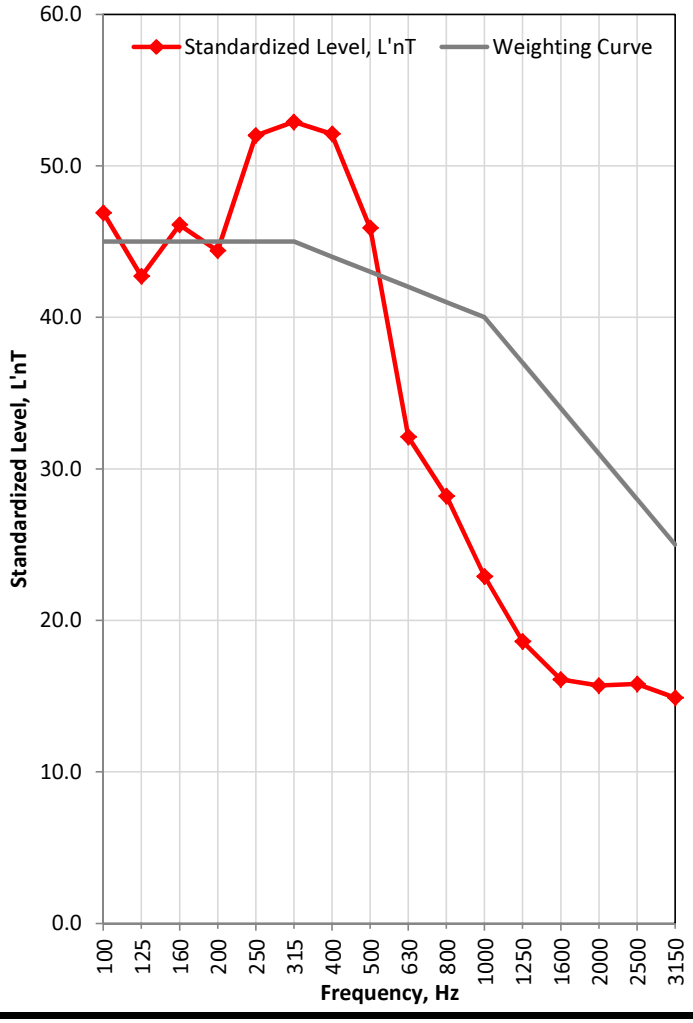
Frequency, Hz	L'nT, dB
100	46.9
125	42.7
160	46.1
200	44.4
250	52.0
315	52.9
400	52.1
500	45.9
630	32.1
800	28.2
1000	<= 22.9*
1250	<= 18.6*
1600	<= 16.1*
2000	<= 15.7*
2500	<= 15.8*
3150	<= 14.9*

* approaching or at the limit for measurement

Measured, L'nT,w: **43 dB**

Criterion, L'nT,w: **57 dB**

Test result: **Pass**



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FIELD MEASUREMENT OF IMPACT SOUND INSULATION OF FLOORS

Standardised impact sound pressure level according to ISO 140-7

Evaluation based on field measurement results obtained in 1/3-octave bands by an engineering method

Project:	Bacton Clock C	**Project no:**	13-0069-0
		Test number:	1125064227
Source room:	5F Flat 19, living	**Test date:**	12-Jan-2017
		Analysis date:	13-Jan-2017
Reciever room:	4F Flat 15, living	**Tester:**	JS,SR,CM,PT

Test Partition: Engineered oak flooring on resilient layer on 250mm concrete slab, with ceiling below comprising one layer of 12.5mm fireline plasterboard on MF hangers creating 250mm void with 50mm mineral wool in void

Partition area, m^2: 22.7

Receiving room volume, m^3: 54.5

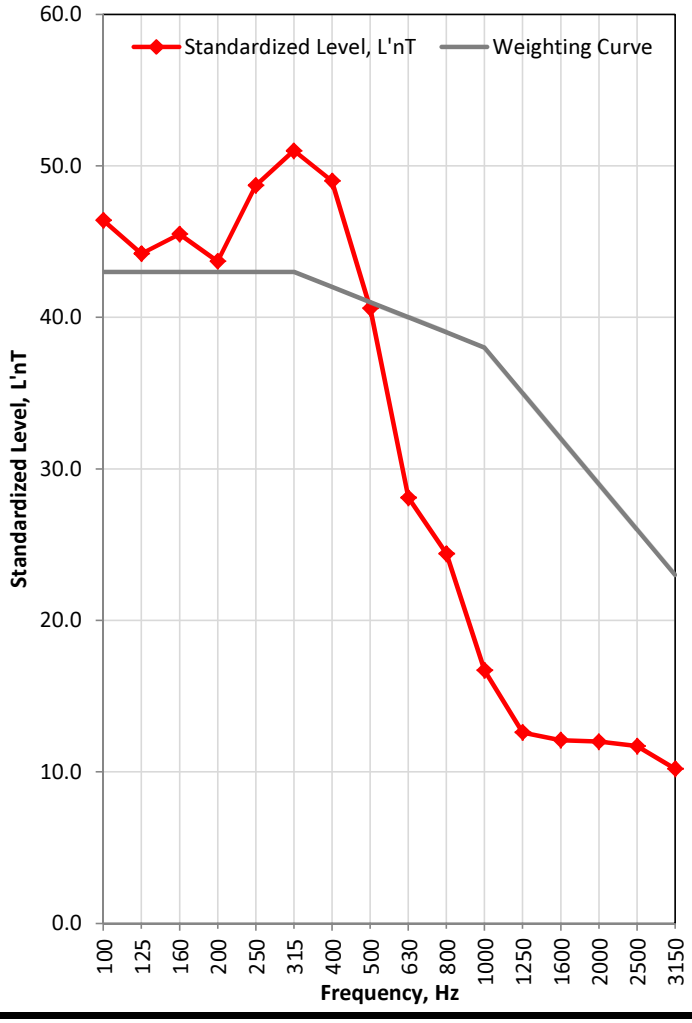
Frequency, Hz	L'nT, dB
100	46.4
125	44.2
160	45.5
200	43.7
250	48.7
315	51.0
400	49.0
500	40.6
630	28.1
800	<= 24.4*
1000	<= 16.7*
1250	<= 12.6*
1600	<= 12.1*
2000	<= 12.0*
2500	<= 11.7*
3150	<= 10.2*

* approaching or at the limit for measurement

Measured, L'nT,w: **41 dB**

Criterion, L'nT,w: **57 dB**

Test result: **Pass**



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FIELD MEASUREMENT OF IMPACT SOUND INSULATION OF FLOORS

Standardised impact sound pressure level according to ISO 140-7

Evaluation based on field measurement results obtained in 1/3-octave bands by an engineering method

Project:	Bacton Clock C	**Project no:**	13-0069-0
		Test number:	1125064228
Source room:	4F Flat 16, living	**Test date:**	12-Jan-2017
		Analysis date:	13-Jan-2017
Reciever room:	3F Flat 12, living	**Tester:**	JS,SR,CM,PT

Test Partition: Engineered oak flooring on resilient layer on 250mm concrete slab, with ceiling below comprising one layer of 12.5mm fireline plasterboard on MF hangers creating 250mm void with 50mm mineral wool in void

Partition area, m^2: 26.7

Receiving room volume, m^3: 64.1

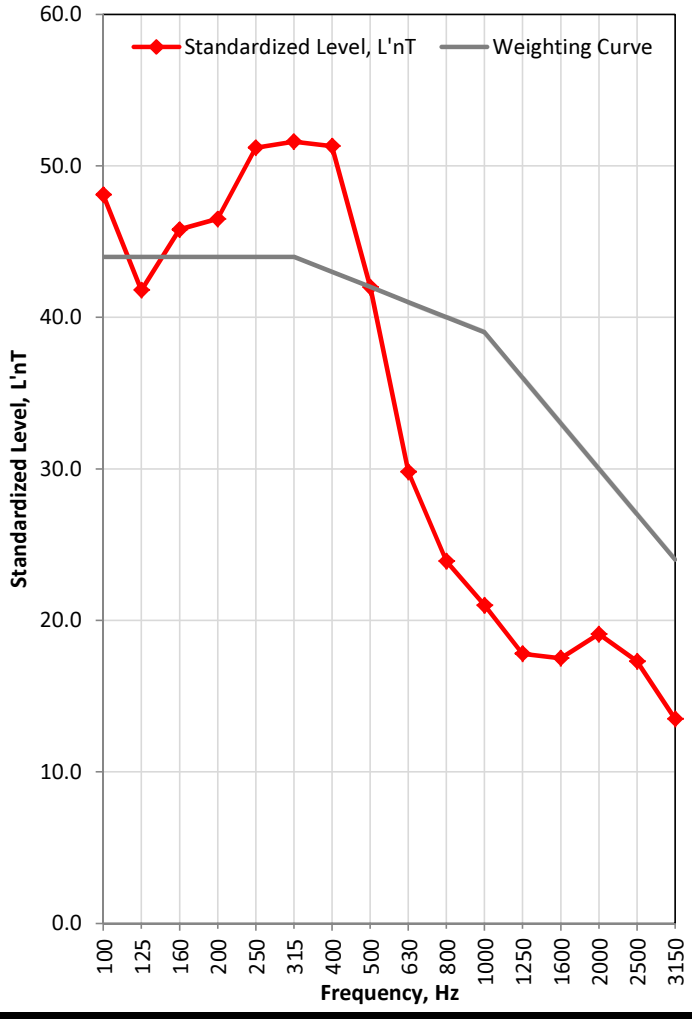
Frequency, Hz	L'nT, dB
100	48.1
125	41.8
160	45.8
200	46.5
250	51.2
315	51.6
400	51.3
500	42.0
630	29.8
800	<= 23.9*
1000	<= 21.0*
1250	<= 17.8*
1600	<= 17.5*
2000	<= 19.1*
2500	<= 17.3*
3150	<= 13.5*

* approaching or at the limit for measurement

Measured, L'nT,w: **42 dB**

Criterion, L'nT,w: **57 dB**

Test result: **Pass**



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FIELD MEASUREMENT OF IMPACT SOUND INSULATION OF FLOORS

Standardised impact sound pressure level according to ISO 140-7

Evaluation based on field measurement results obtained in 1/3-octave bands by an engineering method

Project:	Bacton Clock C	**Project no:**	13-0069-0
		Test number:	1125064229
Source room:	4F Flat 16, bedroom	**Test date:**	12-Jan-2017
		Analysis date:	13-Jan-2017
Reciever room:	3F Flat 12, bedroom	**Tester:**	JS,SR,CM,PT

Test Partition: Engineered oak flooring on resilient layer on 250mm concrete slab, with ceiling below comprising one layer of 12.5mm fireline plasterboard on MF hangers creating 250mm void with 50mm mineral wool in void

Partition area, m^2: 13.0

Receiving room volume, m^3: 31.2

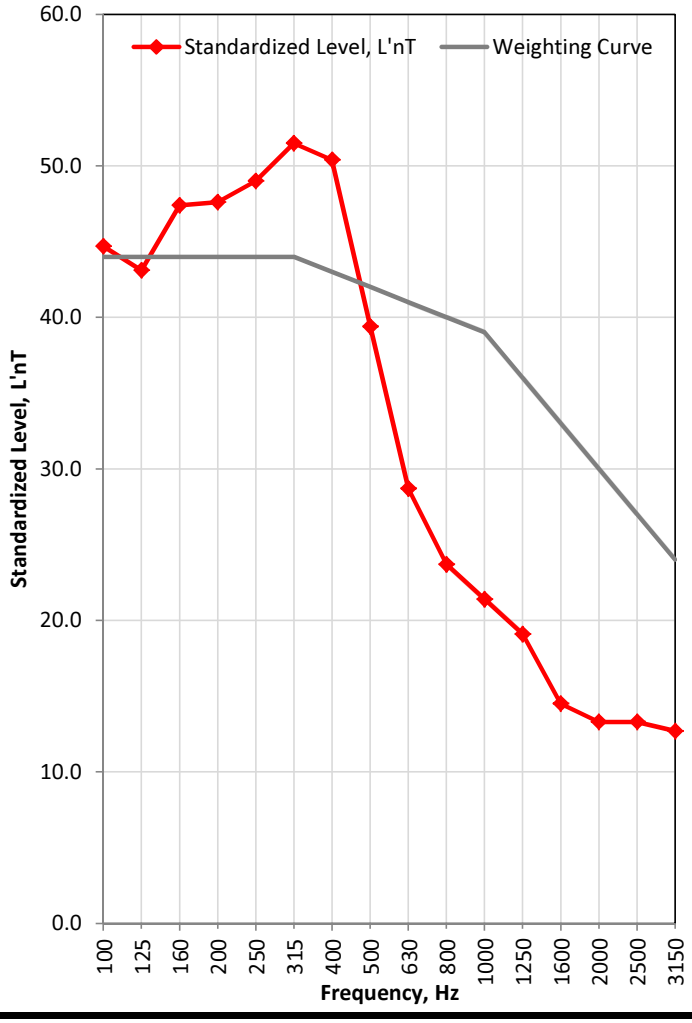
Frequency, Hz	L'nT, dB
100	44.7
125	<= 43.1*
160	<= 47.4*
200	47.6
250	<= 49.0*
315	51.5
400	<= 50.4*
500	<= 39.4*
630	<= 28.7*
800	<= 23.7*
1000	<= 21.4*
1250	<= 19.1*
1600	<= 14.5*
2000	<= 13.3*
2500	<= 13.3*
3150	<= 12.7*

* approaching or at the limit for measurement

Measured, L'nT,w: **42 dB**

Criterion, L'nT,w: **57 dB**

Test result: **Pass**



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FIELD MEASUREMENT OF IMPACT SOUND INSULATION OF FLOORS

Standardised impact sound pressure level according to ISO 140-7

Evaluation based on field measurement results obtained in 1/3-octave bands by an engineering method

Project:	Bacton Clock C	**Project no:**	13-0069-0
		Test number:	1125064230
Source room:	4F Flat 17, living	**Test date:**	12-Jan-2017
		Analysis date:	13-Jan-2017
Reciever room:	3F Flat 13, living	**Tester:**	JS,SR,CM,PT

Test Partition: Engineered oak flooring on resilient layer on 250mm concrete slab, with ceiling below comprising one layer of 12.5mm fireline plasterboard on MF hangers creating 250mm void with 50mm mineral wool in void

Partition area, m^2: 26.9

Receiving room volume, m^3: 64.6

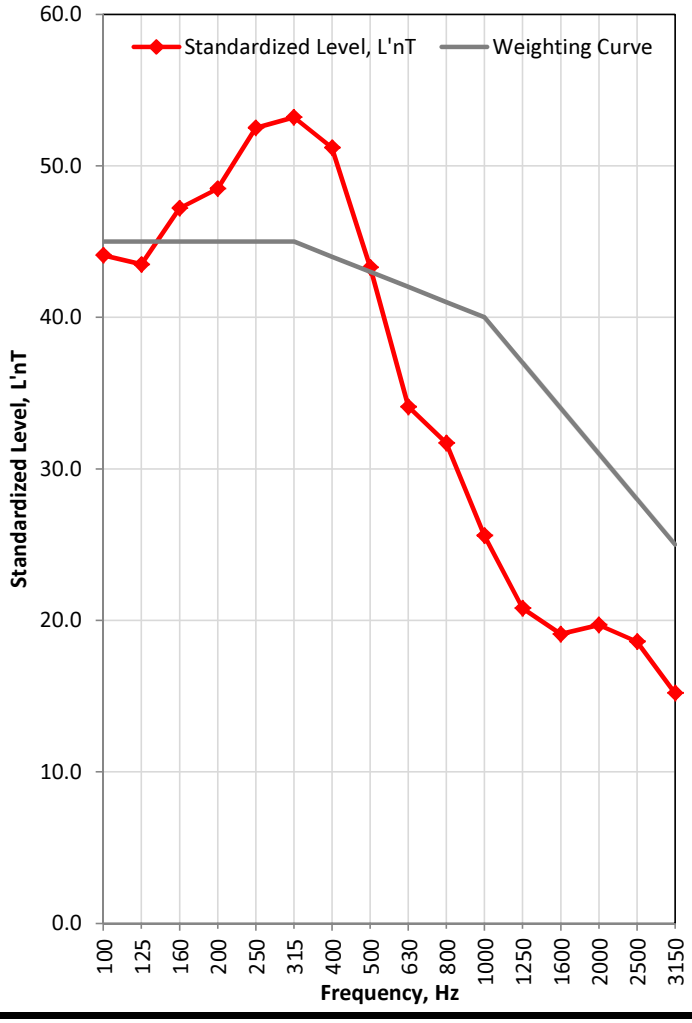
Frequency, Hz	L'nT, dB
100	44.1
125	43.5
160	47.2
200	48.5
250	52.5
315	53.2
400	51.2
500	43.3
630	34.1
800	31.7
1000	<= 25.6*
1250	<= 20.8*
1600	<= 19.1*
2000	<= 19.7*
2500	<= 18.6*
3150	<= 15.2*

* approaching or at the limit for measurement

Measured, L'nT,w: **43 dB**

Criterion, L'nT,w: **57 dB**

Test result: **Pass**



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