

SANDY BROWN

Consultants in Acoustics, Noise & Vibration

Memo: M005-B

Date: 1 November 2023

Project: 21036

Pages: 9

From: Daniel Shaw

Reviewer: James Atha

Burton Place, Manchester

Internal sound insulation measurement results

Cladding replacement works have been undertaken for the apartments at Burton Place to make improvements on the fire rating performances.

This document details the results from the internal airborne sound insulation measurements carried out by Sandy Brown on 19 July and 25 October 2023.

The measurements have been carried out following the replacement facade works to assess the sound insulation performance of walls and floors between adjacent residential premises against Approved Document E (2003 Edition including all amendments up to 2015) to the Building Regulations 2010 for the approval of Manchester City Council.

The measurements included 6 separating floors to apartments carried out on 19 July 2023, and 4 separating walls carried out on 25 October 2023.

All tests complied with the requirements of Approved Document E.

Measurement locations are shown at the end of this memo.

Details installed

The previous facade consisted of a timber frame with an Iroko timber cladding system. The replacement works consist of removing the timber support wall and cladding elements and re-cladding in anodised aluminium.

The sound insulation performance of the replacement facade was assessed in Sandy Brown memo 21036-M001-B *Cladding sound insulation review*, dated 24 March 2021. The cladding flanking transmission was also assessed and was presented in Sandy Brown memo 21036-M002-B *Cladding flanking transmission review*, dated 12 April 2021.

The outcome of these assessments was that the proposed cladding would be able to suitably control noise ingress and flanking.

It was requested that sound insulation tests be carried out to confirm that the replacement cladding works did not compromise the performance.

Criteria

The minimum performance standards for airborne sound insulation that must be achieved to demonstrate compliance with Approved Document E (2003 Edition incorporating 2004, 2010 and 2015 amendments) to the Building Regulations 2010 are given in Table 1.

Table 1 Performance standards for elements that have a separating function

	Airborne sound insulation $D_{nT,w} + C_{tr}$ (dB) (Minimum values)
Purpose built dwellings	
Walls	45
Floors and Stairs	45

The performance standards set out in Table 1 for purpose-built dwellings are relevant for this development.

Method

All tests have been conducted in full accordance with BS EN ISO 140-4:1998 (withdrawn) and BS EN ISO 140-7:1998 (withdrawn).

Values of $D_{nT,w} + C_{tr}$ and $L'_{nT,w}$ are determined in accordance with BS EN ISO 717-1:1997 (withdrawn) and BS EN ISO 717-2:1997 (withdrawn).

It should be noted that these withdrawn standards are used because these specific dated versions are referenced in ADE2003, and as such as required to be used as the basis for testing.

The equipment used to conduct the measurements is set out in Table 2.

Table 2 Equipment details and calibration information

Equipment description	Type/serial number	Manufacturer	Calibration expiry	Calibration certification number
Sound level meter	2250/3011964	Brüel & Kjær	11 Sep 25	UCRT21/2089, UCRT21/2090
Microphone	4189/3100176	Brüel & Kjær	11 Sep 25	UCRT21/2089, UCRT21/2090
Pre-amp	ZC0032/26376	Brüel & Kjær	11 Sep 25	UCRT21/2089, UCRT21/2090
Calibrator	4231/3019123	Brüel & Kjær	11 Sep 25	UCRT21/2086
Loudspeaker	K8	QSC	N/A	N/A

Calibration of the equipment used for the tests is traceable to UKAS accredited laboratories. In addition, the calibration of the sound level meter was checked prior to and after making the measurements. No significant drift in calibration was observed.

Measurement results

The results of measurements are summarised in Table 3.

Table 3 Summary of measured airborne sound insulation results

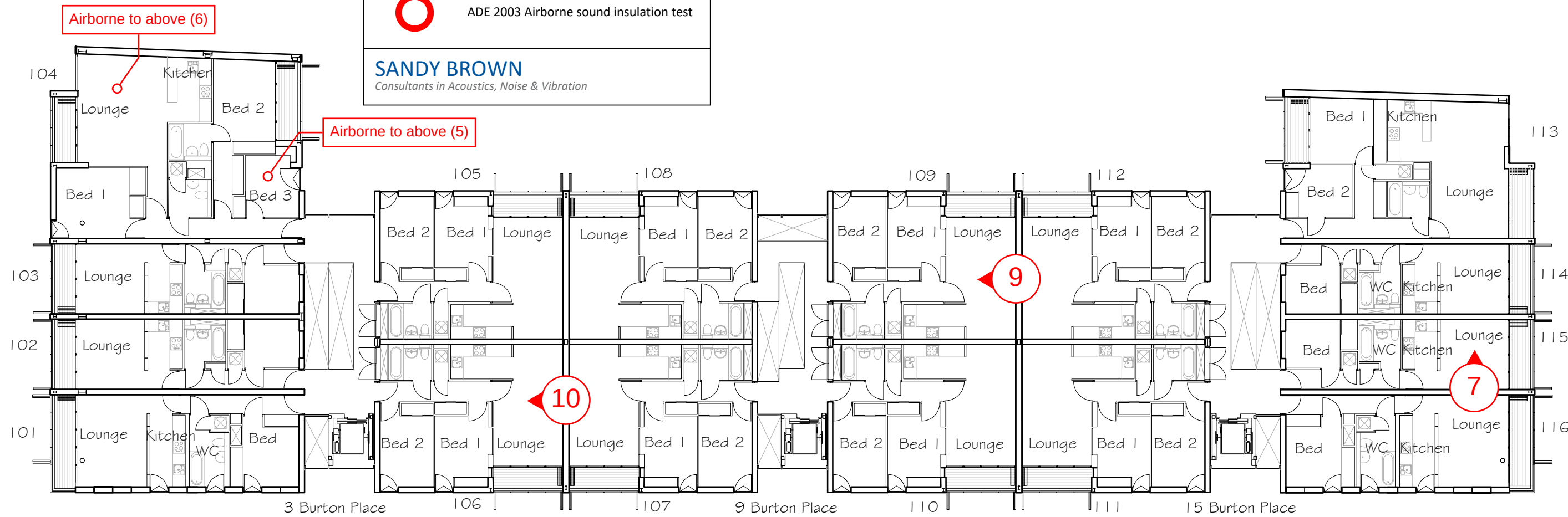
Test ref.	Source Room		Receiver Room		Required $D_{nT,w} + C_{tr}$ (dB)	Measured $D_{nT,w} + C_{tr}$ (dB)	Pass/Fail
	Location	Vol (m ³)	Location	Vol (m ³)			
1	304 Living room	72	404 Living room	72	≥ 45	53	Pass
2	304 Living room	72	204 Living room	72	≥ 45	51	Pass
3	304 Bedroom 3	18	404 Bedroom 3	18	≥ 45	53	Pass
4	304 Bedroom 3	18	204 Bedroom 3	18	≥ 45	53	Pass
5	104 Bedroom 3	18	204 Bedroom 3	18	≥ 45	51	Pass
6	104 Living room	72	204 Living room	72	≥ 45	54	Pass
7	116 Living room	59	115 Living room	45	≥ 45	56	Pass

Test ref.	Source Room		Receiver Room		Required $D_{nT,w} + C_{tr}$ (dB)	Measured $D_{nT,w} + C_{tr}$ (dB)	Pass/ Fail
	Location	Vol (m ³)	Location	Vol (m ³)			
8	303 Living room	43	304 Bedroom 1	32	≥ 45	52	Pass
9	112 Living room	60	109 Living room	60	≥ 45	51	Pass
10	107 Living room	62	106 Living room	62	≥ 45	52	Pass

All tests complied with the requirements of Approved Document E.

Measurement locations

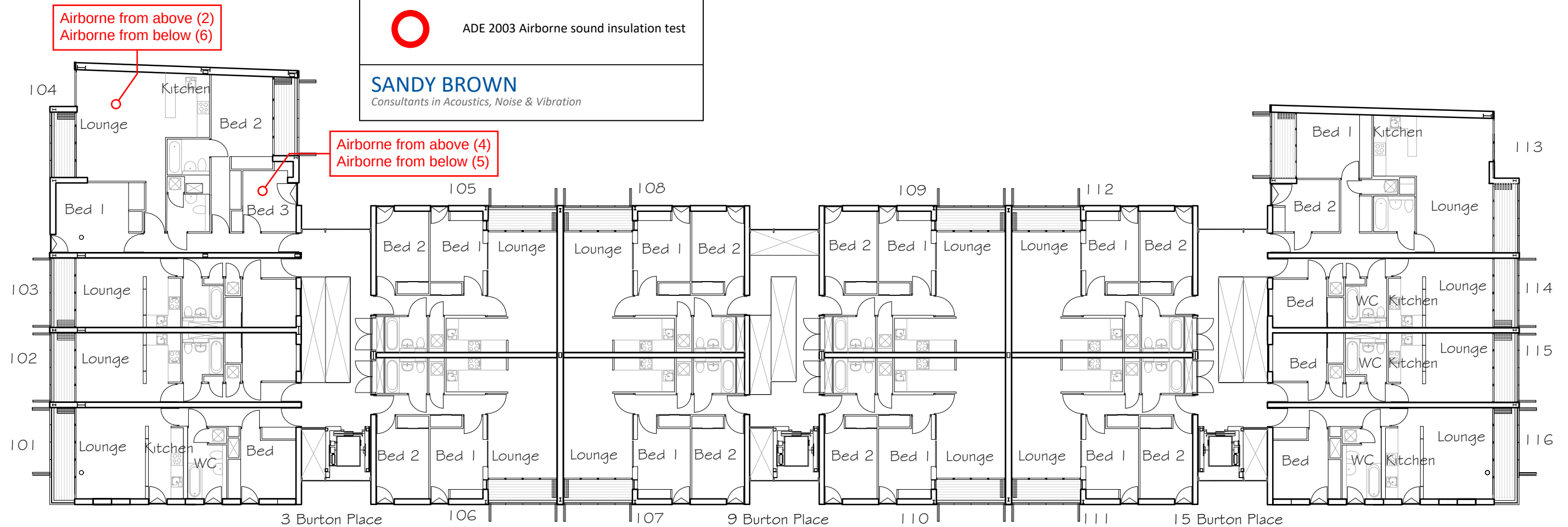
Title	Acoustic sound insulation testing mark-ups
Project	Burton Place
Project no.	21036
Version	B
Marked-up by	Daniel Shaw
Reviewed by	James Atha
Date	1 November 2023
Mark-up key	
ADE 2003 Airborne sound insulation test	
SANDY BROWN Consultants in Acoustics, Noise & Vibration	



First Floor Plan

Client Mainstay	Rev	Description	Date	By	Chk'd
Project Title Burton Place Manchester M15 4LR	BWP Construction & Property Consultants 6 Hewitt Street Manchester M15 4GB T 0161 236 8133 www.bwpconsultants.co.uk				
Scale @ A3 1:100	Description First Floor Layout				
Date 20/11/2020	Job				
By SBR	Checked DB	Job			
DO NOT SCALE THIS DRAWING. CHECK ALL DIMENSIONS ON SITE		Drg BP-FL-01	Rev -		

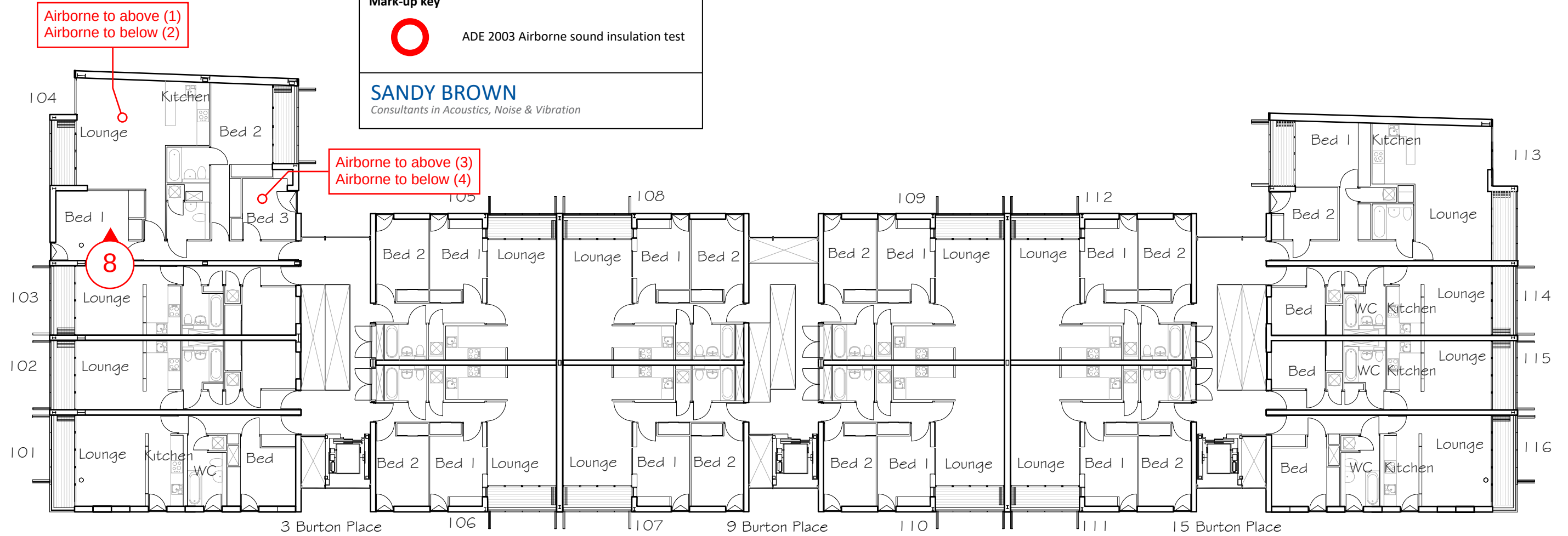
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Second Floor Plan

Client Mainstay	Rev	Description	Date	By	Chck'd
Project Title Burton Place Manchester M15 4LR	BWP Construction & Property Consultants 6 Hewitt Street Manchester M15 4GB T 0161 236 8133 www.bwpconsultants.co.uk				
Scale @ A3 1:100	Description First Floor Layout				
Date 20/11/2020	Job				
By SBR	Checked DB	DO NOT SCALE THIS DRAWING. CHECK ALL DIMENSIONS ON SITE			
		Drg BP-FL-01	Rev -		

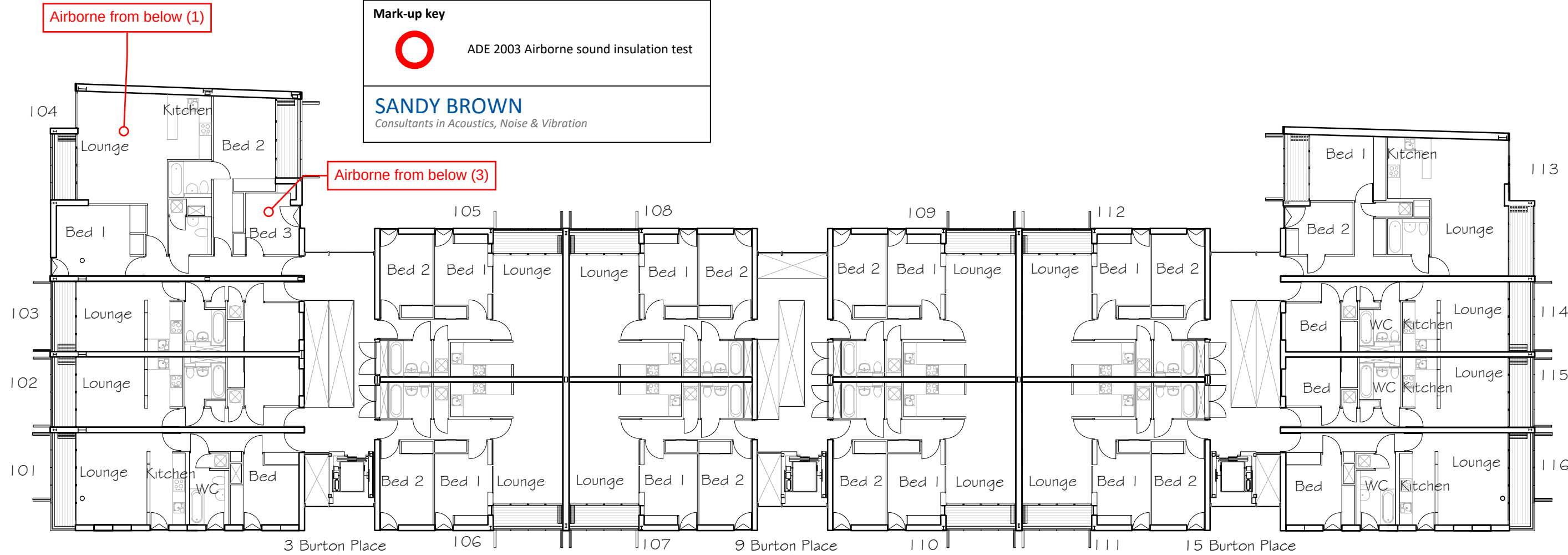
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Third Floor Plan

Client Mainstay	Rev	Description	Date	By	Chk'd
Project Title Burton Place Manchester M15 4LR	BWP Construction & Property Consultants 6 Hewitt Street Manchester M15 4GB T 0161 236 8133 www.bwpconsultants.co.uk				
Scale @ A3 1:100	Description First Floor Layout				
Date 20/11/2020	Job				
By SBR	Checked DB	Job			
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Fourth Floor Plan

Client Mainstay	Rev	Description	Date	By	Chk'd
Project Title Burton Place Manchester M15 4LR	BWP Construction & Property Consultants 6 Hewitt Street Manchester M15 4GB T 0161 236 8133 www.bwpconsultants.co.uk				
Scale @ A3 1:100	Description First Floor Layout				
Date 20/11/2020	Job				
By SBR	Checked DB	DO NOT SCALE THIS DRAWING. CHECK ALL DIMENSIONS ON SITE			
		Drg BP-FL-01	Rev -		