

To	Nick Leach
Company	Diocese of London
From	Rob Kirkaldy
Date	6 February 2024
Our Ref	RK3678/24010
Your Ref	
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SOUND INSULATION TESTING - NO.10 & 10B THE GROVE, HIGHGATE, N6 6LB

Please find a summary of the results of sound insulation tests conducted at the above address between dwellings on 31 January 2024.

1. ACOUSTIC CRITERIA: BUILDING REGULATIONS APPROVED DOCUMENT E

Approved Document E of the Building Regulations 2003, *Resistance to the passage of sound*, specifies minimum standards of sound insulation that should be provided to adequately control transfer of noise associated with normal domestic activities between adjacent dwellings.

The minimum numerical sound insulation requirements for converted houses and flats are specified in the Building Regulations for both airborne sound insulation (referred to as the weighted standardised level difference or $D_{nT,w}$ + C_{tr}) and impact sound insulation (referred to as the weighted standardised impact sound pressure level or $L'_{nT,w}$). They are as follows:

Separating Construction	Airborne Sound Insulation $D_{nT,w} + C_{tr}$ (dB)	Impact Sound Insulation $L'_{nT,w}$ (dB)
Walls	≥ 43	-
Floors	≥ 43	≤ 64

Table 1: Sound insulation requirements for separating constructions (conversion)

2. RESULTS

2.1 Separating floor – airborne sound insulation

Source Room	Receiver Room	Measured $D_{nT,w} + C_{tr}$ (dB)	Minimum Requirement (dB)	Pass/Fail
House - GF Living Room	Flat - Basement Front Bedroom	39	43	Fail
House - GF Dining Room	Flat - Basement Living Rom	40	43	Fail
House - GF Kitchen	Flat - Basement Rear Bedroom	36	43	Fail

Table 2: Results of separating floor airborne sound insulation tests.

The separating floor constructions tested failed meet the numerical requirements for airborne sound insulation specified in Approved Document E. (Note that the *higher* the value of $D_{nT,w} + C_{tr}$, the better the sound insulation).

Distribution

Name _____ Company _____
(see email cover sheet)

2.2 Floor – Impact Sound Insulation

Source Room	Receiver Room	Measured $L'_{nT,w}$ (dB)	Max. Req'm't (dB)	Pass/Fail
House - GF Living Room	Flat - Basement Front Bedroom	35	64	Pass
House - GF Dining Room	Flat - Basement Living Rom	34	64	Pass
House - GF Kitchen	Flat - Basement Rear Bedroom	70	64	Fail

Table 3: Results of the impact sound insulation tests

The impact sound insulation tests across the floor constructions meet the numerical requirements of Approved Document E, except for the test between the kitchen within the house and the rear bedroom of the flat below. (Note that the *lower* the value of $L'_{nT,w}$, the better the impact sound insulation.)

3. PROPOSED MITIGATION OPTIONS

Airborne Sound

In order to improve the airborne sound insulation performance, it is recommended that the plasterboard which is currently fixed to the underside of the timber joists be removed.

Although the floor to ceiling height within the house is very high (around 4m), treatment to the top side of the floor may not be possible. The floor to ceiling height with the existing ceiling in place is around 2.5m. Therefore, the existing plasterboard ceilings within the basement flat should be removed. Ideally, new joists should be installed and fixed within the walls at either end in a staggered formation. Two layers of 15mm Soundbloc plasterboard should be fixed to the underside of the new timber joists so that the ceiling is not structurally connected to the floor above. Mineral wool should be loosely laid within the void. The larger the air gap within the void the better.

If new joists cannot be installed, resilient bars should be fixed to the underside of the existing floor joists with 38mm square timber battens fixed underneath running at 90 degrees to the existing joists. A secondary layer of resilient bars should then be fixed to the underside of the battens, with two layers of 15mm Soundbloc plasterboard fixed underneath to create a new ceiling. A sketch of this has been included in the attached.

Impact Sound

In order to improve the impact sound insulation, it is recommended that the existing floor coverings within the house are removed. Note that the impact performance between the Living Room and Dining Room of the house and the rooms within the flat below was sufficient enough to meet the current requirements of ADE. This was due to the carpet being in place. However, it may be beneficial to apply the remedial works to the entire ground floor of the house to safeguard any future tenants. With this in mind, it is recommended that the timber floor boards which are currently fixed to the top side of the timber joists are removed and replaced with one layer cement board, similar to Promat Masterboard or equivalent. On top of this should be a screed board layer. Floor finishes may then be applied to the screed board layer.

If you have any further questions, please do not hesitate to contact me.

Regards



Rob Kirkaldy
Principal Consultant



SPECTRUM

ACOUSTIC CONSULTANTS

SPECTRUM REF _____

CLIENT _____

CLIENT REF _____

PROJECT NAME _____

DRAWING TITLE

DRAWING NO.

NO.	DESCRIPTION	DATE
5		
4		
3		
2		
1		

REVISIONS

- ① FIX RB1 RESILIENT BARS TO 38mm SQUARE BATTEN
- ② FIX THRU' RB1 TO UNDERSIDE OF JOIST ABOVE
- ③ INSTALL ANOTHER ROW OF RB1 RESILIENT BARS AT RIGHT ANGLES TO BATTENS
- ④ INSTALL 50mm MINERAL FIBRE INSULATION IN VOID
- ⑤ FIX DOUBLE LAYER OF PLASTERBOARDS TO U/S OF LOWER RESI BARS.

GENERAL:-BATTENS/ RESI BARS @ >400c/s
DO NOT FIX THROUGH P/BOARD TO BATTENS

