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Technical Note...

New Basement Flat at 34 Shoot-Up Hill, London. NW2 3QB.

Discharge of Condition 5 of planning permission 2017/3606/P

KR07269

version 1.0 – 19th July 2023

Report Conclusion...

To comply with condition 5 of planning permission 2017/3606/P it would be recommended that the airborne sound insulation for the ceiling and wall is more than $D_{nT'w} + C_{tr}$ 48 dB and the impact sound insulation for the ceiling is less than $L_{nT'w}$ 59 dB.

To meet the requirements an acoustic ceiling should be installed throughout the proposed basement and acoustic wall lining applied to the rear wall.

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Version History...

Reference	Version	Date	Author	Position	Document Status
KR07269	V1.0	19/07/23	R Scrivener	Consultant	Technical Note
Details	Currnet Issue – For submission to the Local Authority				

Report Limitations...

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1. Technical Note...

1.1. Introduction

KR Associates (UK) Ltd have been instructed to provide details of the acoustic mitigation required to the new basement flat ceiling and walls at 34 Shoot-Up Hill in London to discharge condition 5 of planning permission 2017/3606/P.

1.2. Planning Permission

The London Borough of Camden granted planning permission under reference 2017/3606/P on 7th November 2017 for the following developments.

“Conversion of no 2 garages into no 1 self-contained 1bed 2 person residential flat (C3) including single storey side extension, installation of ground floor lightwells, alterations to levels, landscaping and associated alterations.”

Consideration has been given to the minor amendments made to the scheme under reference 2022/522/P which was granted planning permission by the London Borough of Camden on 17th January 2023.

1.3. Condition 5

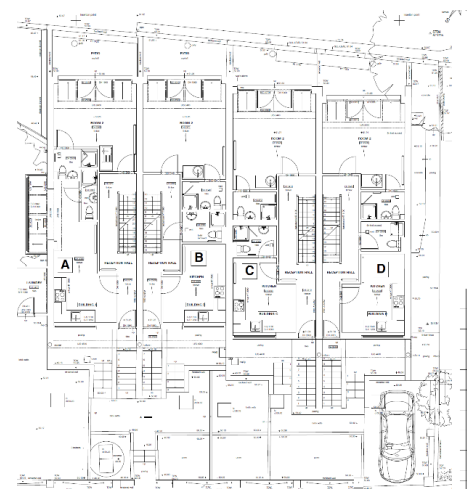
Planning permission 2017/3606/P was granted with condition 5 which required the ceiling to the existing ground floor above and the wall to the two basement flats to be upgraded to be 5 dB above the current building regulations.

“Prior to the commencement of the development, details shall be submitted to and approved in writing by the Council, of an enhanced sound insulation value $D_{nT'w}$ and $L_{nT'w}$ of at least 5 dB above the Building Regulations value, for ceiling / wall structures separating the hereby approved unit from rooms uses in adjoining dwellings. This is namely in respect to the two HMO units adjacent to the approved unit at lower ground and two HMO units immediately above at ground floor level within 34A and 34B and. Approved details shall be implemented prior to occupation of the development and thereafter be permanently retained.”

1.4. Scope of Technical Note

This technical note will confirm the required airborne and impact sound insulation and propose mitigation measures within the constraints of the development to achieve the required value.

1.5. Existing Site Layout



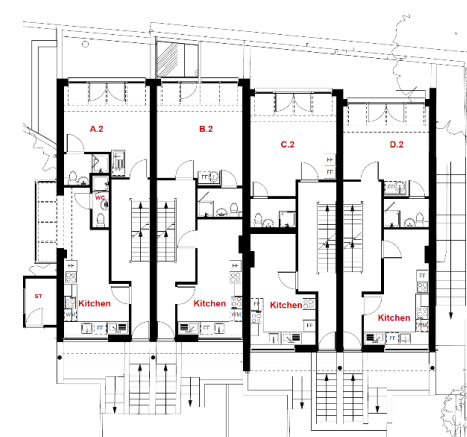
Existing Ground Floor Layout



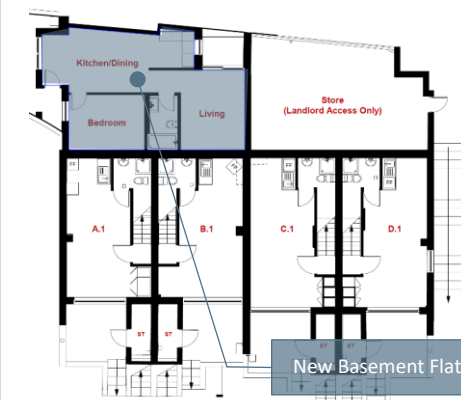
Existing Basement Floor Layout

1.6. Existing Site Layout

The new basement flat will be formed by converting the two existing garages into a single flat with bedrooms of HMO A2 and B2 directly above and the kitchen and bathrooms of HMO A1 and B1 on the same level adjacent to the bedroom and living room of the proposed flat.

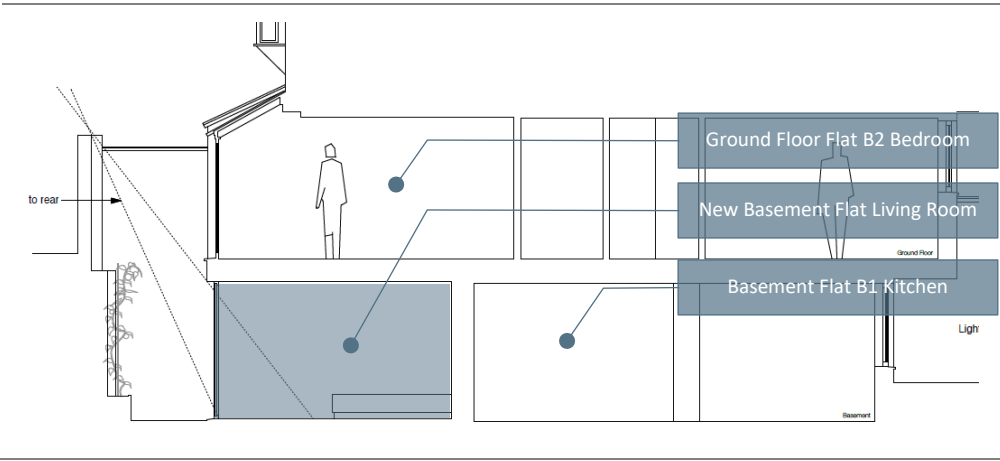


Proposed Ground Floor Layout

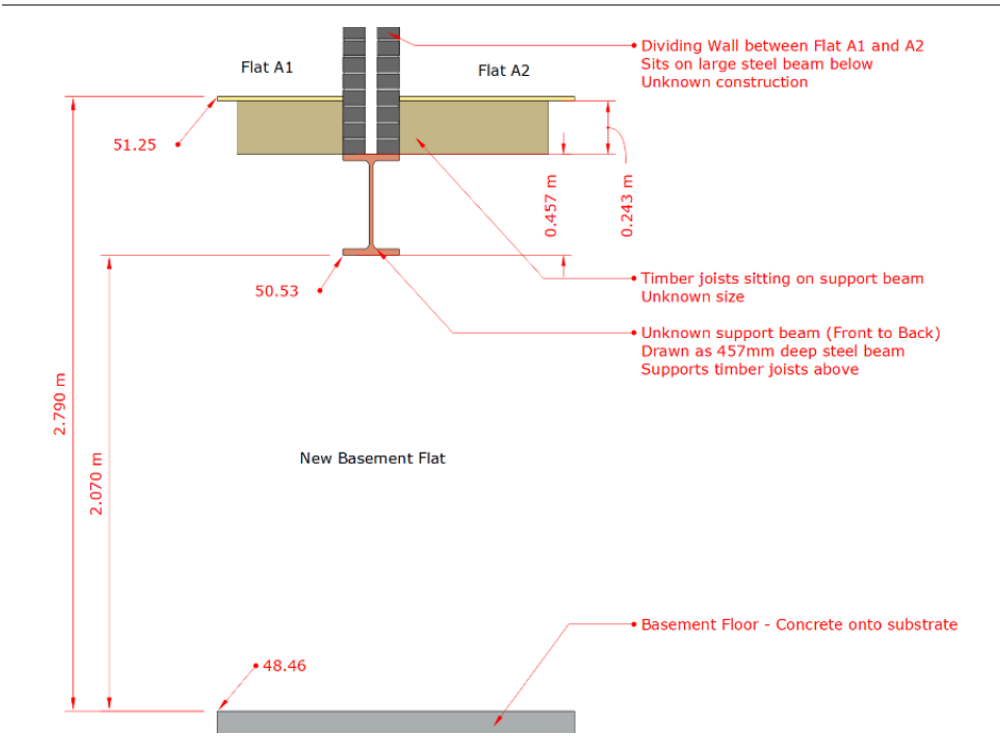


Existing Basement Floor Layout

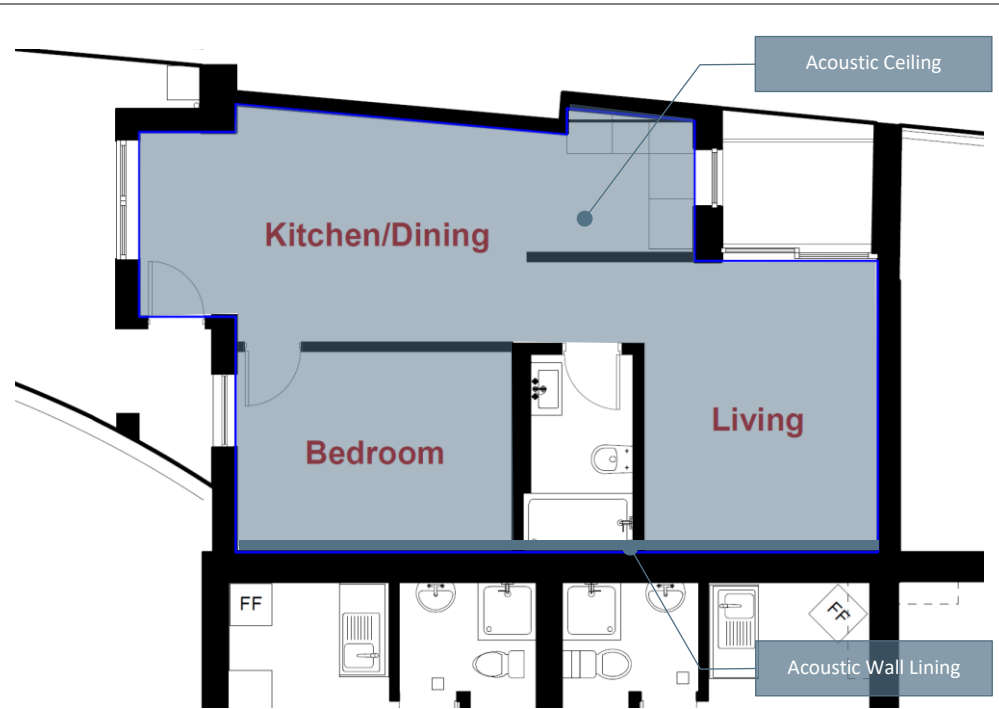
1.7. Section through Building



1.8. Relative Heights



1.9. Location of Acoustic Mitigation



1.10. Building Regulations 2010

There are no specific requirements under Part E of Schedule 1 of the Building Regulations 2010 when an existing residential flat is being refurbished. However, the following are some useful criterion that can provide guidance when assessing the suitability and requirements of the separating airborne sound insulation between individual flats.

*“Schedule 1 of the Building Regulations 2010
Protection against sound from other parts of the building or adjoining buildings.
E.1. Dwelling-houses, flats and rooms for residential purposes shall be designed and constructed in such a way that they provide reasonable resistance to sound from other parts of the same building and from adjoining buildings.”*

1.11. Approved Document E: 2003 (Amended)

This document provides details that *“In the Secretary of State’s view the normal way of satisfying Requirement E1 will be to build separating walls,, separating floors, and stairs that have a separating function, together with the associated flanking construction, in such a way that they achieve the sound insulation values for dwelling-houses set out in table 1a..”*

The following table replicates the requirements for rooms formed by a material change of use.

Table 0.1a Dwelling-houses and flats – performance standard for separating walls, separating floors, and stairs that have separating function

	Airborne sound insulation $D_{nT,w} + C_{tr}$ dB (Minimum Values)	Impact sound insulation $L'_{nT,w}$ dB (Maximum Values)
Dwelling-houses and flats formed by material change of use		
Walls	43	--
Floors and stairs	43	64

1.12. Proposed Criterion

In order to comply with condition 5 of planning permission 2017/3606/P it would be recommended that the dividing ceiling and wall meets the following minimum requirements.

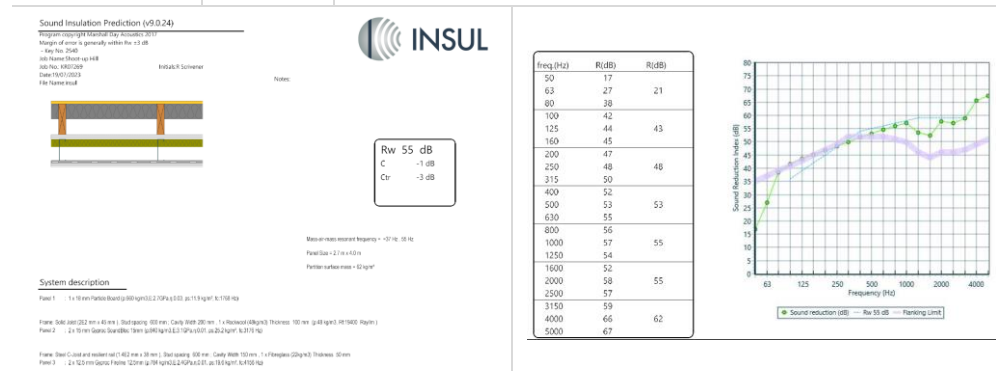
	Airborne sound insulation D _{nT,w} + C _{tr} dB (Minimum Values)	Impact sound insulation L' _{nT,w} dB (Maximum Values)
Wall to A1.B1	48	--
Ceiling to A2.B2	48	59

1.13. Calculations

The airborne and impact sound insulation values have been calculated using the Marshall Day Insul calculation software which undertakes the calculations to BS EN ISO 12354 – Part 1: 2017 for airborne sound and BS EN ISO 12354 – Part 2: 2017 for impact sound.

1.14. Airborne Sound Insulation of Ceiling

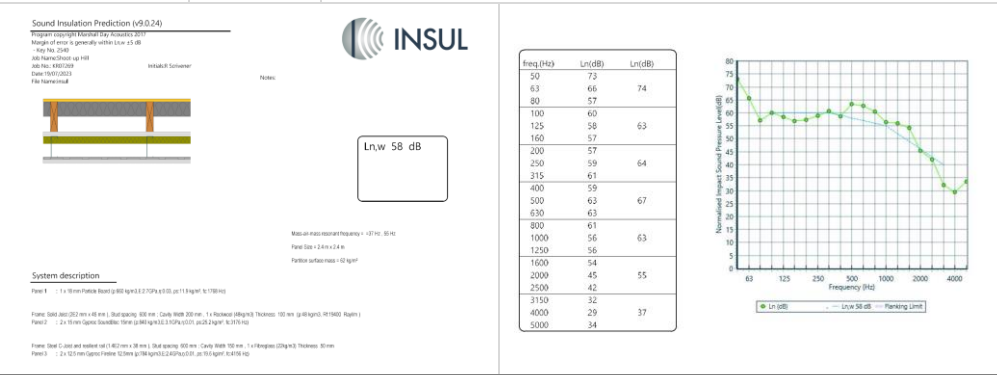
Element	Thickness	Description of Element
Existing Floor	18mm	T&G Chipboard floor screwed to the existing joists.
	200mm	Timber joists of unknown depth
	100mm	45 Kgm-3 rockwool insulation between joists
Under boarding	2 x 15mm	British Gypsum sound bloc plasterboard screwed to joists
MF Ceiling	150mm	British Gypsum Casoline MF Ceiling
	50mm	45 Kgm-3 rockwool insulation between joists
	2 x 12mm	British Gypsum Firline plasterboard.



Details	Octave Centre Band Frequency (Hz)							
	D _{nT'w} + C _{tr}	63	125	250	500	1K	2K	4K
Airborne Sound Insulation	51	21	43	48	53	55	55	62
Compliance	The proposed construction will exceed the requirements detailed in table 0.1a of Approved Document E by more than 5 dB which complies with condition 5 of planning permission 2017/3606/P							
Transmission Loss (dB)								

1.15. Impact Sound Insulation of Ceiling

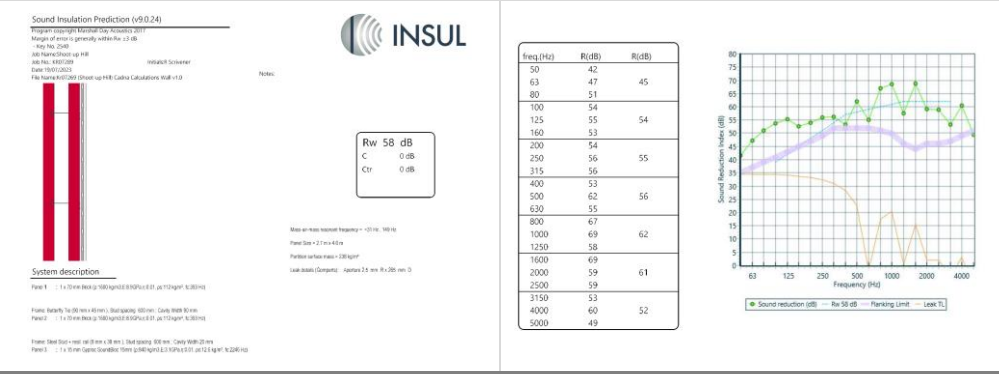
Element	Thickness	Description of Element
Existing Floor	18mm	T&G Chipboard floor screwed to the existing joists.
	200mm	Timber joists of unknown depth
	100mm	45 Kgm-3 rockwool insulation between joists
Under boarding	2 x 15mm	British Gypsum sound bloc plasterboard screwed to joists
MF Ceiling	150mm	British Gypsum Casoline MF Ceiling
	50mm	45 Kgm-3 rockwool insulation between joists
	2 x 12mm	British Gypsum Firline plasterboard.



Details	Octave Centre Band Frequency (Hz)							
	L _{nT} w	63	125	250	500	1K	2K	4K
Airborne Sound Insulation	58	74	63	64	67	63	55	37
Compliance	The proposed construction will exceed the requirements detailed in table 0.1a of Approved Document E by more than 5 dB which complies with condition 5 of planning permission 2017/3606/P							
Transmission Loss (dB)								

1.16. Impact Sound Insulation of Wall

Element	Thickness	Description of Element
Existing Wall	70mm	Standard Brick (Estimated construction) 3mm nominal hole
	90mm	Standard cavity with butterfly ties (No Insulation)
	70mm	Standard Brick (Estimated construction) 3mm nominal hole
Wall Lining	17mm	British Gypsum RB1 Resilient Bar (600mm centres)
	15mm	British Gypsum sound bloc plasterboard



Details	Octave Centre Band Frequency (Hz)							
	D _{nT'} w + C _{tr}	63	125	250	500	1K	2K	4K
Airborne Sound Insulation	58	45	54	55	56	62	61	52
Compliance	The proposed construction will exceed the requirements detailed in table 0.1a of Approved Document E by more than 5 dB which complies with condition 5 of planning permission 2017/3606/P							
Transmission Loss (dB)								

1.17. Conclusions

To comply with condition 5 of planning permission 2017/3606/P it would be recommended that the airborne sound insulation for the ceiling and wall is more than $D_{nT'w} + C_{tr}$ 48 dB and the impact sound insulation for the ceiling is less than $L_{nT'w}$ 59 dB.

To meet the requirements an acoustic ceiling should be installed throughout the proposed basement and acoustic wall lining applied to the rear wall.

1.18. Assumption in Calculations

1.18.1 Acoustic Ceiling

It is assumed that the ground floor bedrooms currently located above the garage have a non-acoustic floor consisting of 18mm T&G chipboard floor screwed directly to timber joists. The mitigation measures have assumed that the flats are already constructed and occupied and that it will not be possible to provide any mitigation in these flats. The acoustic ceiling provides the required airborne and impact sound from applying the mitigation measures to the underside of the existing timber joists.

1.18.2 Acoustic Wall

It is assumed that the existing wall is a cavity construction with a minimum of 70mm brick forming each leaf. The calculations have assumed that the wall is not complete and has a nominal 3mm hole.

Prior to the installation of the wall lining, any holes in the wall should be sealed up with a concrete render to form an airtight seal. It may be appropriate to render the wall to form a flat surface to mount the RB1 resilient bars to.

1.18.3 Under Boarding

It would be recommended that the ceiling under boarding of 2 x 15mm soundbloc plasterboard is extended round the steel beams. A metal or timber stud work should be formed within the web of the beam and plasterboard installed flush to the outside. The void behind should be filled with 45 Kg m^{-3} rockwool used in the acoustic ceiling.

The survey information within the original drawings indicate that the underside of the lowest beam is 2.07m above the concrete floor.

It would be recommended that the beams are further clad in 2 layers of 12mm fireline plasterboard. This would make the encasing around 55mm below the underside of the existing beam.

The acoustic ceiling can then be set at a higher level and sealed to the side of the clad beam which would increase the ceiling height between the beams.

1.18.4 Fire and Structural Considerations

It would be recommended that a qualified Architect confirm the proposed acoustic ceiling and wall lining provides the required fire separation for this type of property and that the existing structure can accommodate the additional weight of the acoustic ceiling.

1.18.5 Downlighters and Services

The calculations have assumed that the acoustic ceiling and walls are complete with no down lighters, electrical sockets or any services passing through them. The ceiling and walls need to be complete to obtain the calculated airborne and impact sound insulation values.

1.18.6 Habitable Rooms

It has been assumed that the criterion imposed by condition 5 of planning permission 2017/3606/P only refers to habitable rooms. Therefore, no acoustic ceiling has been proposed within the bathroom of the new basement flat. It would be recommended that this assumption is confirmed with the Local Authority.

If the criterion doesn't apply to the bathroom, then the Casoline MF Acoustic ceiling can be omitted from the bathroom and replaced by a single layer of plasterboard which will be acceptable to install downlighter and or any extract fans for the bathroom.

1.18.7 Ventilation

It has been assumed that the glazing and ventilation has been designed by other to ensure internal noise levels meet the requirements of table 4 of BS 8233: 2014. The internal noise levels within the new basement flat is outside the scope of this technical note which is solely designed to discharge condition 5 of planning permission 2017/3606/P relating to internal noise transfer.

END OF TECHNICAL NOTE

