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acoustic consultancy & air leakage specialists

Document E Design Report

72 Eversholt Street
London
NW1 1BY

Date of Report: Thursday 18th March 2021

Reference: 14654 Version 1

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1 General Information

1.1 Site Address

72 Eversholt Street
London
NW1 1BY

1.2 Client Instructing Survey

Nekton Investments Limited
Studio 1
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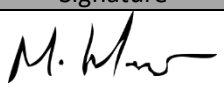
1.3 Date of Survey

Wednesday 12th March 2021

1.4 Report Author

	Name	Position	Signature	Date
Prepared by	J Holmes BSc AMIOA	Junior Acoustic Consultant		12/03/2021
For and on behalf of: Soundtesting.co.uk Ltd				

1.5 Report Checked

	Name	Position	Signature	Date
Report Checked	M S Hamer MSc MIOA	Acoustic Consultant		12/03/2021
For and on behalf of: Soundtesting.co.uk Ltd				

2 Introduction

Nekton Investments Limited has instructed Soundtesting.co.uk Limited to undertake a site investigation to advise on construction details and junctions based on areas available to view whilst on site, in order to comply with Building Regulations Part E - The Resistance to the Passage of Sound.

The proposed development site is an existing 4 storey building currently comprising basement & ground floor commercial space and first and second floor residential dwellings. It is proposed to convert the commercial units into 4No. additional residential dwellings. The commercial units were previously used as escape rooms and were fitted with various decorative internal features during site attendance. The recommendations made in this document are based entirely on areas available to view during site attendance and drawings provided by the architect. Further assessment may be required should further information on existing construction details become apparent once the current commercial units have been emptied.

This document has been prepared using the various documents listed within the appendices of this report, together with drawings, technical information and additional verbal representations made by third parties. We have not audited nor independently verified the content or accuracy of any of the documents and information provided to us in the preparation of this report.

Should additional information come to light subsequent to the production of this report, we reserve the right to revise our opinions and the conclusions reached within this document.

2.1 Sound Insulation Assessment

Soundtesting.co.uk Ltd have carried out a site survey of the current building. The site survey was focused on assessing the current building elements and associated construction details which will become separating elements needing to meet the requirements of Building Regulations Document E 2003.

This report will state the current construction elements and required improvements and will refer to guidance contained within Approved Document E Resistance to the passage of sound.

3 Assumptions & Limitations

All suggested specifications require a good level of workmanship and for materials to be installed as the manufacture intends. Any poor workmanship may lead to weaknesses in the sound insulation provided by the building elements.

Whilst in site attendance, many areas were fitted out as the existing escape rooms; therefore, all suggested specifications are based on areas available to view whilst on site.

4 Criteria

4.1 Approved Document Part E: The Resistance to the Passage of Sound

The acoustic requirements of residential buildings are normally given in national building regulations and associated guidance documents. For England, acoustic performance requirements are given in the Building Regulations Approved Document E 2003.

Approved Document E provides guidance on how the Regulations may be satisfied and sets acoustic performance standards. The required levels of insulation for airborne and impact sound are summarised in the following tables.

Table 1: Approved Document Part E (ADE) Performance Standards			
Purpose built dwelling-houses and flats			
Separating walls:	Airborne	$D_{nT,w} + C_{tr}$	45dB or higher
Separating floors:	Airborne	$D_{nT,w} + C_{tr}$	45dB or higher
Separating floors:	Impact	$L'_{nT,w}$	62dB or lower
Dwelling- houses and flats formed by material change of use			
Separating walls:	Airborne	$D_{nT,w} + C_{tr}$	43dB or higher
Separating floors:	Airborne	$D_{nT,w} + C_{tr}$	43dB or higher
Separating floors:	Impact	$L'_{nT,w}$	64dB or lower
Purpose built rooms for residential purposes			
Separating walls:	Airborne	$D_{nT,w} + C_{tr}$	43dB or higher
Separating floors:	Airborne	$D_{nT,w} + C_{tr}$	45dB or higher
Separating floors:	Impact	$L'_{nT,w}$	62dB or lower
Rooms for residential purposes formed by material change of use			
Separating walls:	Airborne	$D_{nT,w} + C_{tr}$	43dB or higher
Separating floors:	Airborne	$D_{nT,w} + C_{tr}$	43dB or higher
Separating floors:	Impact	$L'_{nT,w}$	64dB or lower

4.2 Criteria Summary

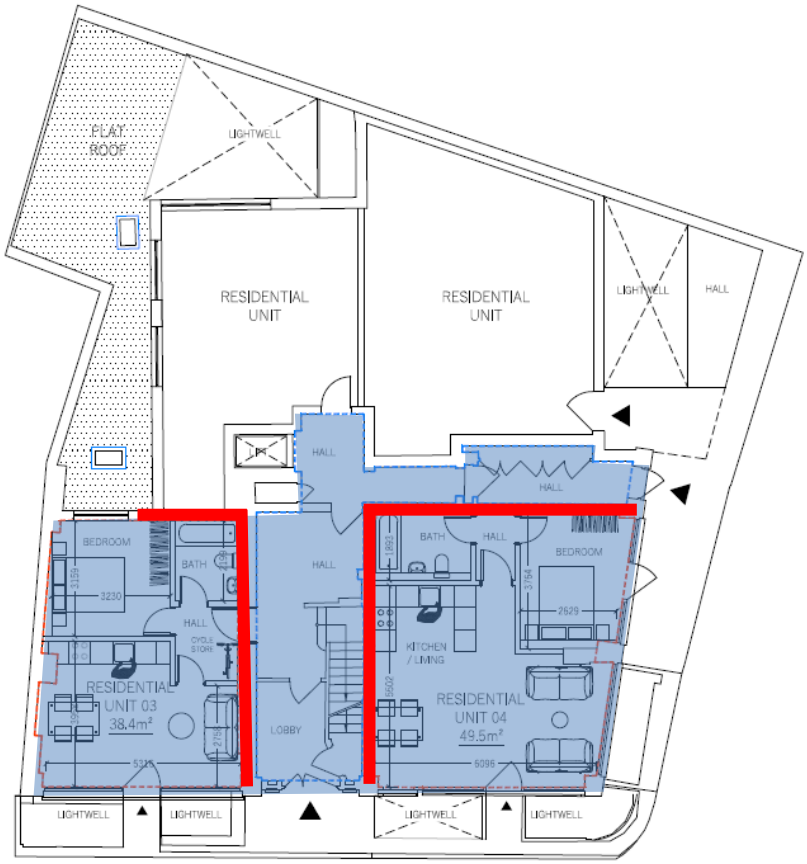
The development will be required to meet the performances stated in Building Regulations Approved Document E 2003, for Dwelling-houses and flats formed by material change of use.

5 Site Survey and Recommendations

A site inspection has been carried out to establish areas of the development that require acoustic detailing. The proposed development consists of 4No. residential dwellings with multiple separating walls and floors between both existing and proposed residential apartments. The following recommendations are based on areas that were observed during site attendance as well as drawings provided by the architect.

The detail below shows the proposed site plan with the separating walls highlighted in red. The rear of the building includes existing residential units. The development site can be seen below highlighted in blue.

GROUND FLOOR



5.1 Recommendations

Area 1: Separating Floor Between Basement and Ground Floor

It is recommended to form an independent metal frame ceiling on acoustic hangers.

1. Fix 2No. 15mm Soundbloc plasterboard to the underside of a metal frame ceiling and lay 100mm mineral fibre insulation 45kg/m^3, within the void.

2. The dimension between the underside of the timber joists and the underside of the plasterboard ceiling should be minimum 200mm or greater if installing below supporting beams.

3. Where possible the ceiling should be continuous below any supporting beams.

4. On the concrete floor above lay 5mm rubber resilient layer, such as 'HUSH over screed Membrane' or 'Pliteq GenieMat'

Area 2: Separating Floor Between Ground Floor and First Floor

It is recommended to form an independent metal frame ceiling on acoustic hangers.

1. Fix 2No. 15mm Soundbloc plasterboard to the underside of a metal frame ceiling and lay 100mm mineral fibre insulation 45kg/m^3, within the void.

2. The dimension between the underside of the timber joists and the underside of the plasterboard ceiling should be minimum 200mm.

3. Where possible the ceiling should be continuous below any supporting beams.

Area 3: Existing Masonry Wall Between Pub and Ground Floor Residential

Area 3 identified in section 5.2 is an existing masonry wall between an existing ground floor Pub and proposed residential unit 03.

The existing masonry wall between ground floor pub and residential unit 03 should be lined with an independent lining of 100mm stud with a double layer of 15mm Soundbloc fixed to the stud. The stud can be timber or metal 'C' studs. The stud is insulated with 100mm 45Kg/m^3 mineral fibre insulation fitted tightly in the studs. There should be a clear void between the stud and the external wall to maintain independence.

Annotated drawings of these areas are outlined in section 5.2.

Area 4: Separating Walls Between Residential Units

Area 4 identified in section 5.2 are the separating walls between residential units.

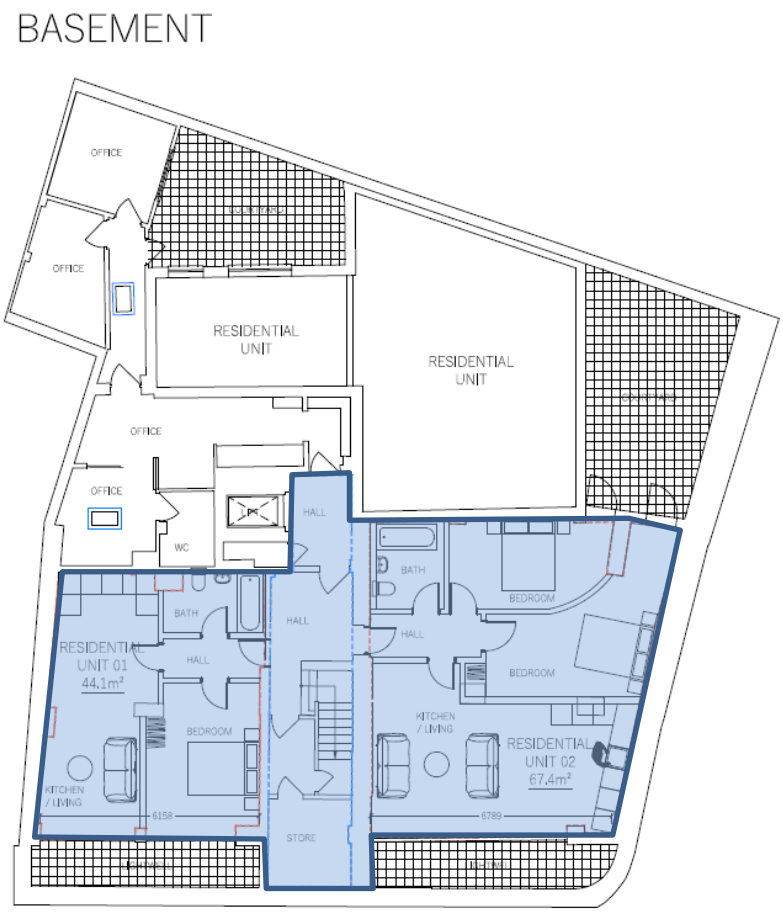
Separating walls between residential units and into other habitable rooms should be lined with an independent lining of 100mm stud with a double layer of 15mm Soundbloc fixed to the stud. The stud can be timber or metal 'C' studs. The stud is insulated with 100mm 45Kg/m^3 mineral fibre insulation fitted tightly in the studs. There should be a clear void between the stud and the external wall to maintain independence.

Annotated drawings of these areas are outlined in section 5.2.

Area 5: Separating Walls between Residential units and Other Areas
Area 5 identified in section 5.2 are the separating walls in between residential units and other areas such as hallways, and inhabitable rooms including bathrooms. It is recommended in these areas to install an independent wall lining such as a Heavy Duty 30mm deep resilient bar or Gypliner to one side of the existing wall. 2 x 15mm Soundbloc plasterboard should be installed to the independent wall lining. Ensure all resilient bars are fitted in accordance with manufacturer's instructions.

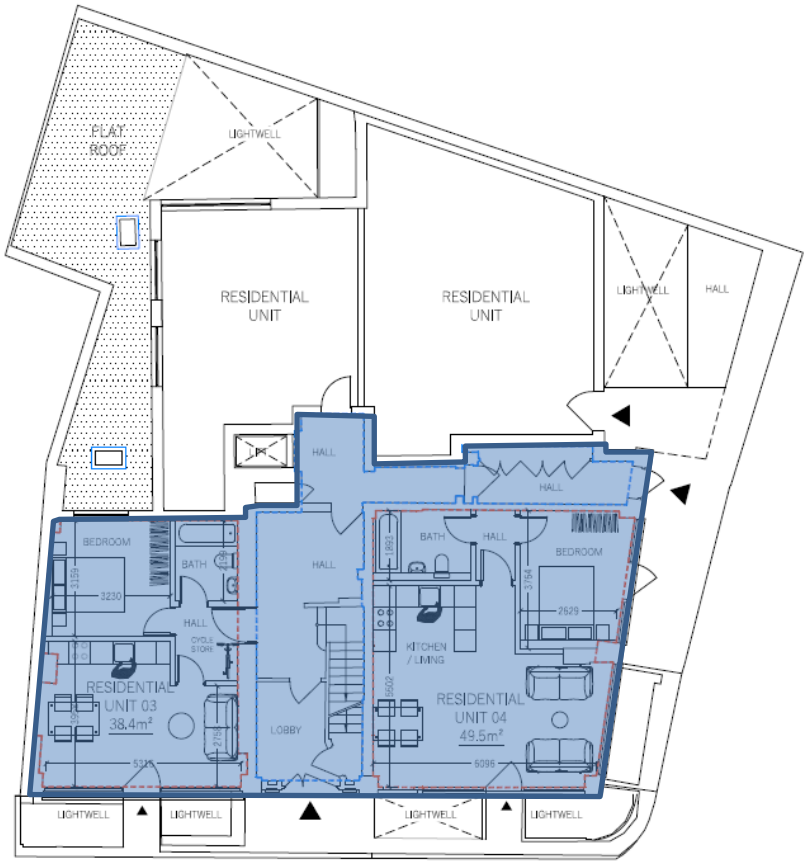
5.2 Annotated Drawings

The detail below identifies Area 1 and the recommendations discussed above.



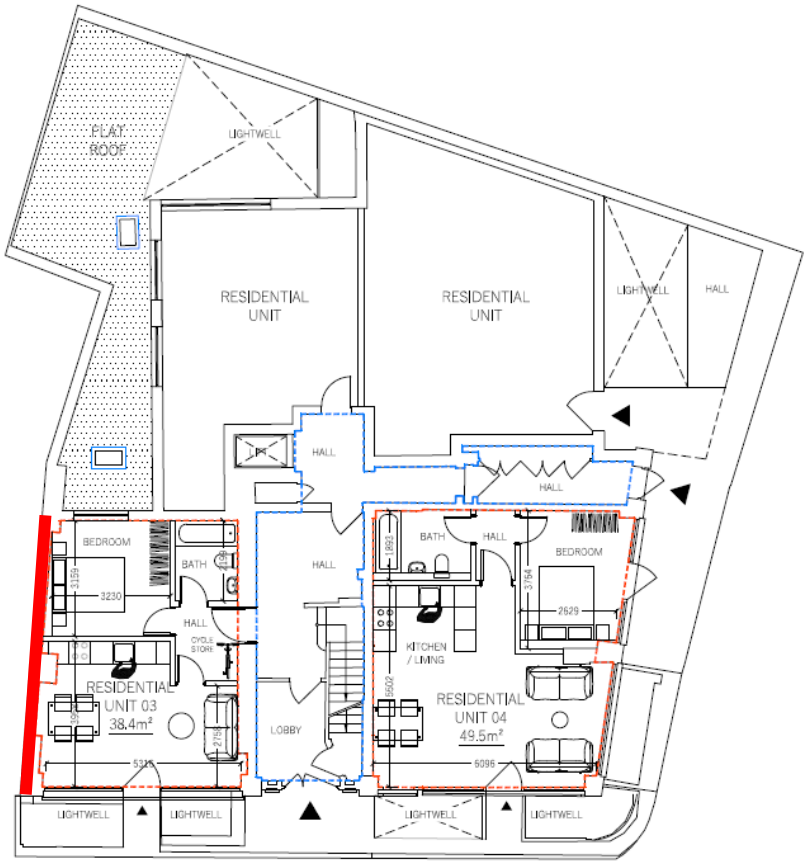
The detail below identifies Area 2 as discussed above.

GROUND FLOOR



The detail below identifies Area 3 as discussed above

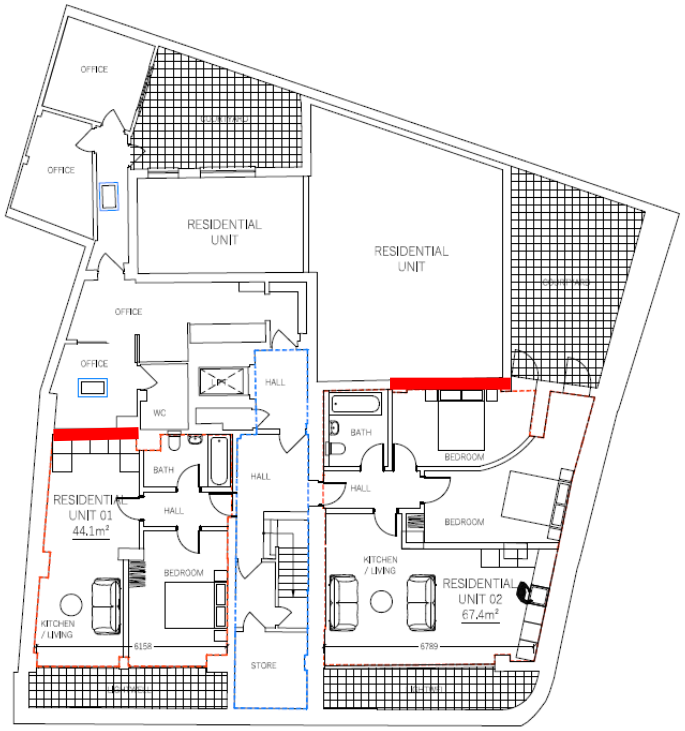
GROUND FLOOR



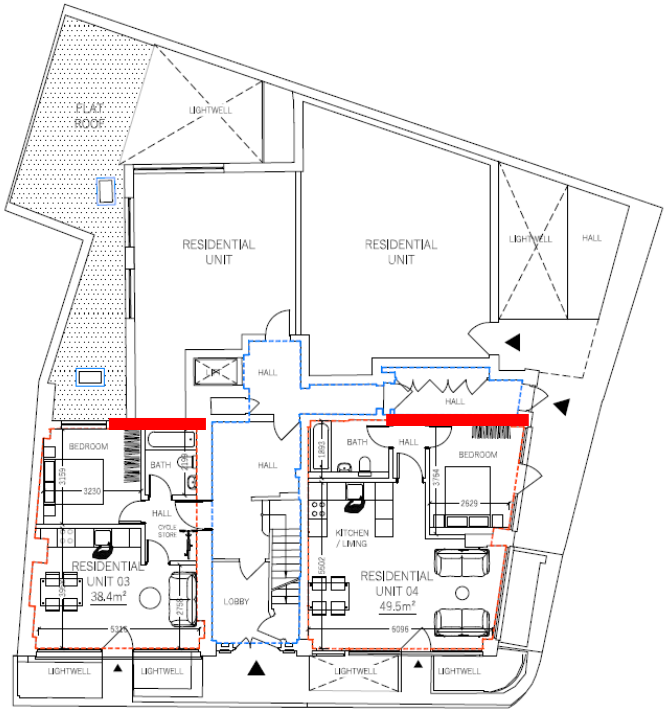
100mm independent stud filled tightly with 100mm mineral wool insulation (45kg/m^3), 2 x 15mm Soundbloc plasterboard.

The detail below identifies Area 4 as discussed above

BASEMENT



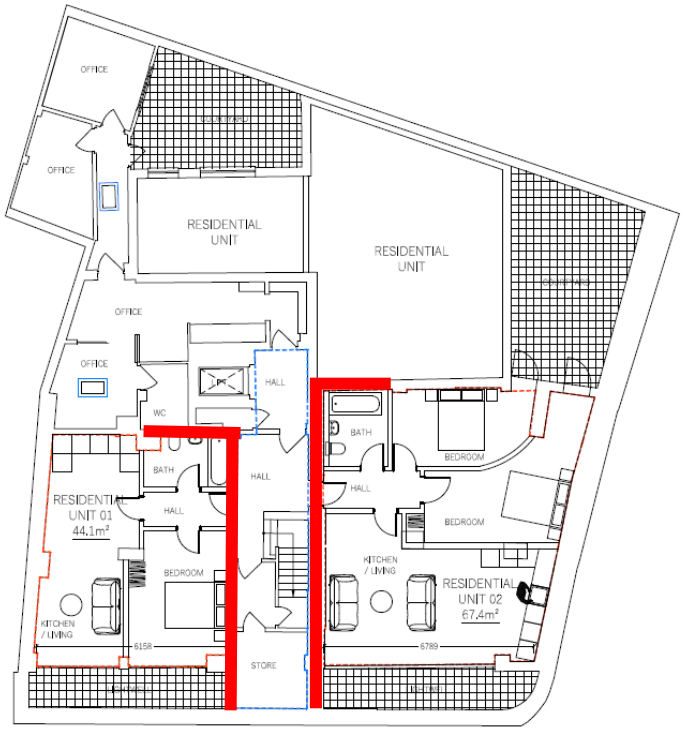
GROUND FLOOR



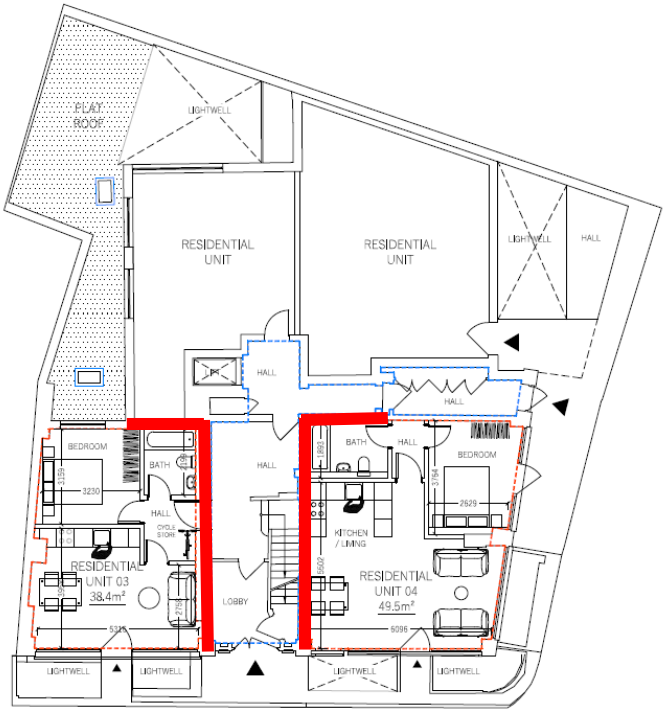
100mm independent stud filled tightly with 100mm mineral wool insulation (45kg/m^3), 2 x 15mm Soundbloc plasterboard either side.

The detail below identifies Area 5 as discussed above

BASEMENT



GROUND FLOOR



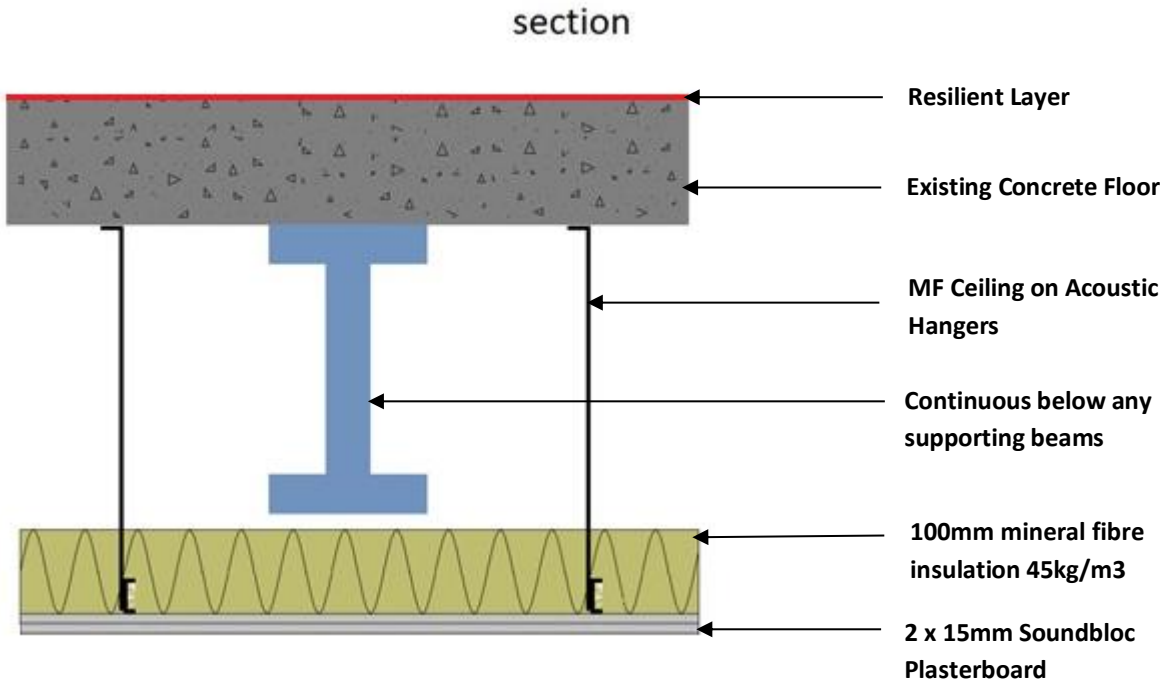
Independent wall lining, 2 x 15mm Soundbloc Plasterboard

6 Construction Details

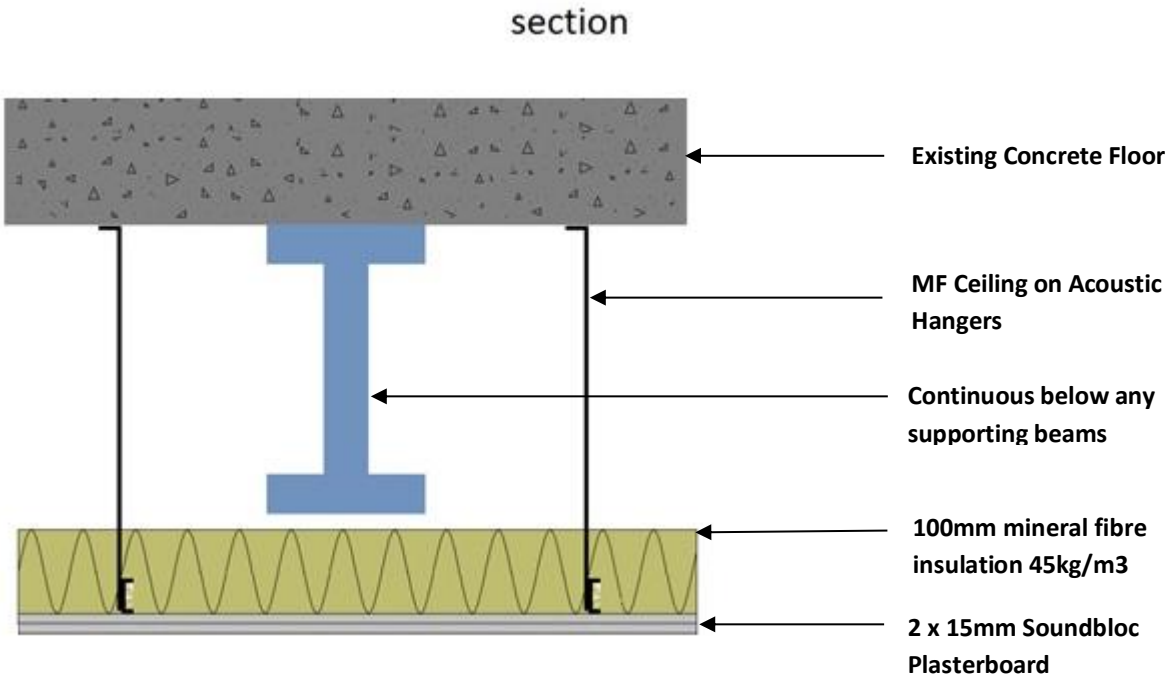
The following details show the recommendations as detailed above in section 5.1.

It should be noted that the following details are a visual reference and not to scale.

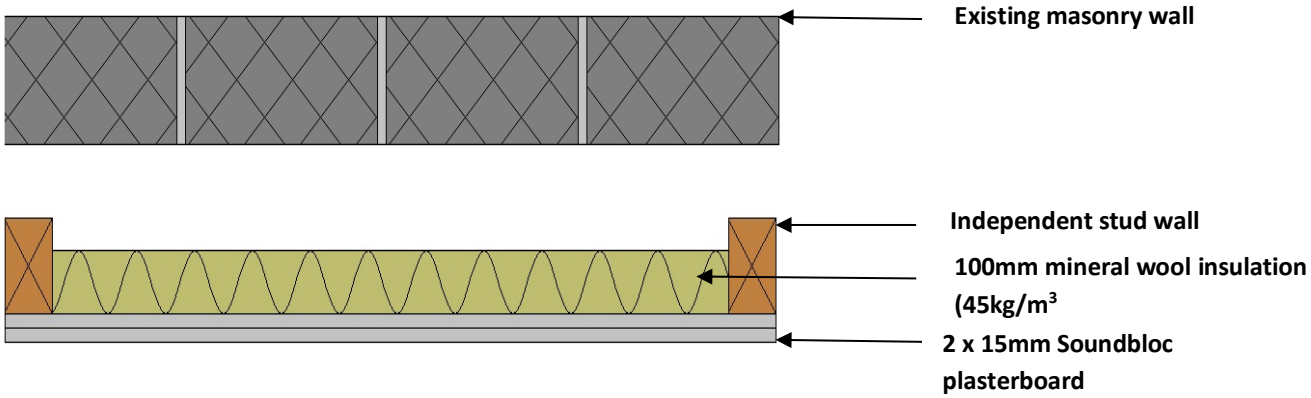
Area 1



Area 2



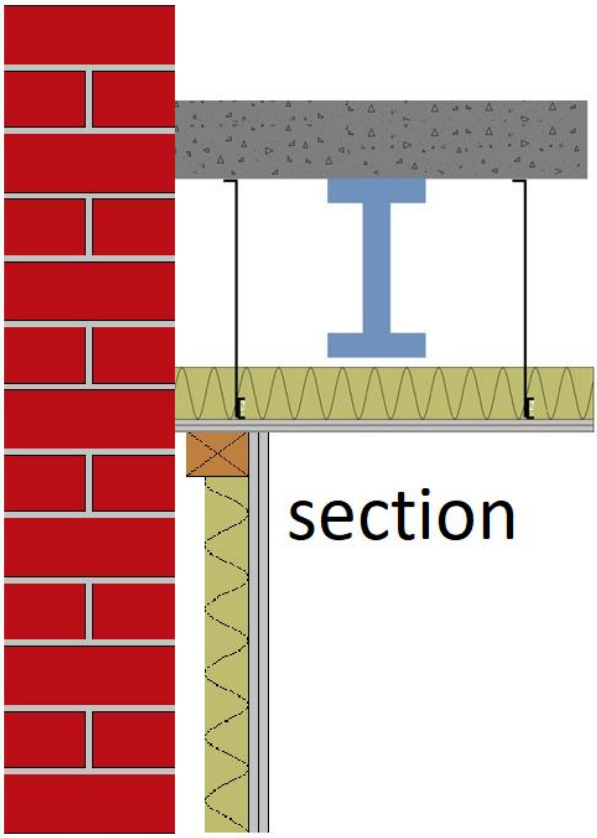
Areas 3 and 4



Minimum gap between the existing wall and stud should be at least 10mm.

Typical Junction

The following detail shows the junction between the wall and floor. The MF ceiling system should be installed before the independent wall lining.



7 Conclusion

This report provides a general overview and examples of specification details with the aim of meeting the requirements of Building Regulations Document E 2003 only. Seek further advice from specialists regarding Part B Fire Safety and Part L Conservation of Fuel and Power.

The construction details and comments within this report have been aimed at achieving the requirements set out in the criteria summary, which sets a target of achieving the requirements of Building Regulations Document E 2003 between separating rooms for dwellings formed by material change of use.

As discussed previously all detailing has been based on areas available to view at the time of the site survey; and therefore, should be treated as a feasibility. Further detailing may be required when the areas have been stripped back and further inspections of the construction can be carried out.

8 References

Approved Document Part E The resistance to the passage of sound

9 Appendix

Downlighters

Downlighters and recessed lighting can potentially be used within the ceiling layers of the separating floor. However, the chosen separating floor must be capable of allowing this.

Typically, the downlighters and recessed lighting must be installed:
- In accordance with the manufacturer's instructions.
- at no more than one light per 2m2 of ceiling area in each room.
- at centres not less than 0.75m
- into openings not exceeding 100mm diameter or 100mm x 100mm. Particular attention should also be paid to Building Regulations Part B – Fire safety.

Doors

Ensure that any door has good perimeter sealing (including the threshold where practical) and a minimum mass per unit area of 25kg/m^2 or a minimum sound reduction index of 29dB R_w (measured according to BS EN ISO 140-3:1995 and rated according to BS EN ISO 717-1:1997). The door should also satisfy the Requirements of Building Regulation Part B – Fire Safety.