

Sound
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Specialists in Acoustic Flooring and House to Flat Conversions

Date:

Client:

Address:

Re: Sound Insulation Site Inspection

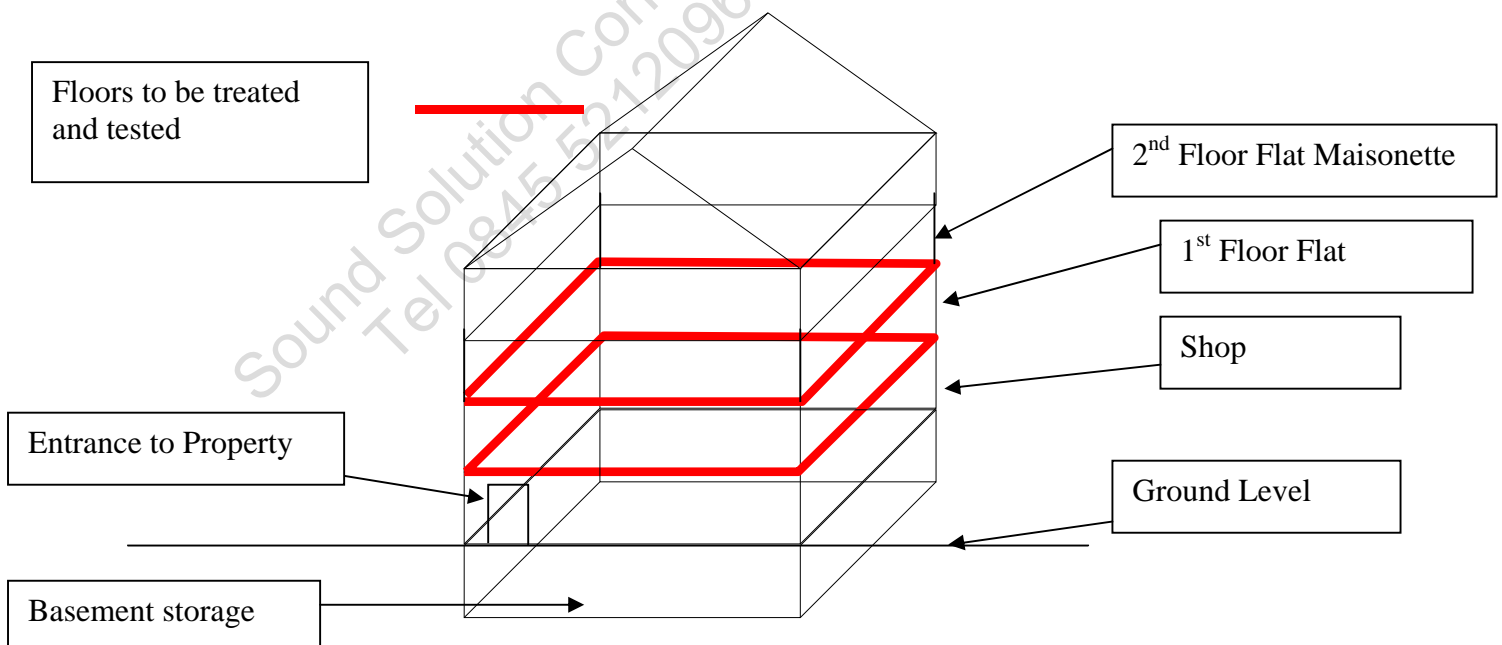
Report No:

Dear

Thank you for your instruction to visit the above site and report on findings, regarding compliance measures towards Approved Document E, please find my following report as promised.

Overview

I understand the property was formerly a Shop with accommodation and storage above and below ground floor level, the client intends to convert the upper levels into 2 Flats whilst keeping the shop on the ground Floor and using the basement for shop storage. Please see below for general arrangement



This is a very simplified representation of the layout, it is not to scale and should only be used for reference purposes.

Requirements

In a strict assessment of the situation the conversion falls in with in the scope of Approved Document E of the Building Regs and as such should meet the standard criterion as detailed below.

Flat conversions Separating Floors

Separating Floor Between Flats Airborne Noise Reduction = 43dB Dn T,w + (Ctr) or greater

Separating Floor Between Flats Impact Noise Reduction = 64dB Ln T,w or less

Because of the layout of the conversion, there are 2 Separating Floors that will need to be treated and tested, however if we can keep treatment identical on each level then we can limit this to the following
You will therefore require the following number of tests.

2 Airborne Floor Tests to achieve 43dB Dn T,w + (Ctr) or greater (between and 1st and 2nd Floor)

2 Impact Floor Tests to achieve 64dB Ln T,w or less (between and 1st and 2nd Floor)

As the only Party walls in the property are separating the Flats from communal areas and there is not more than 1 flat on each level, you will not be required to test any Party Walls, however you will still be required to treat these Party Walls as though they will be tested.

I would advise that you check this requirement with Building Control, as any change from the above will have affect the overall costs of testing. Please let me know what they will require and then I can confirm a price for the Sound Tests themselves.

Current Status

The property is un-occupied at the moment and has been completely stripped out, some work has already been carried out in the formation of Stud work walls and supporting steel work being inserted.

The separating floors are basically exposed, some work has already been started, namely laying the sub-floor and building up all internal stud walls on each level.

In order to reduce the cost of Sound Tests I discussed the various options open, with the client and we all eventually agreed that the best way forward was create a 9" or 10" void by fixing Battens to the underside of the joists before then installing the ceiling below, this was mainly due to the amount of steel work with in the property, I felt that this would adversely affect the test results and so I am trying to counteract their likely effect.

There are several other issues within this conversion that need addressing, I will cover all issues relating to Approved Document E within this report and have listed the main issues under the headings shown below.

1. Party Floors between all Flats
2. Internal Party walls
3. Internal stud work
4. Additional Flanking routes ie fireplaces and steel work
5. Treatment of stairs.
- 6.** Final fitting check list

1. Party Floors between all Flats

The following treatment should be carried out on levels high lighted in red on the General Arrangement view on page 1, the treatment is not required on the upper most floor and the floor between shop and Basement.

Recommendations

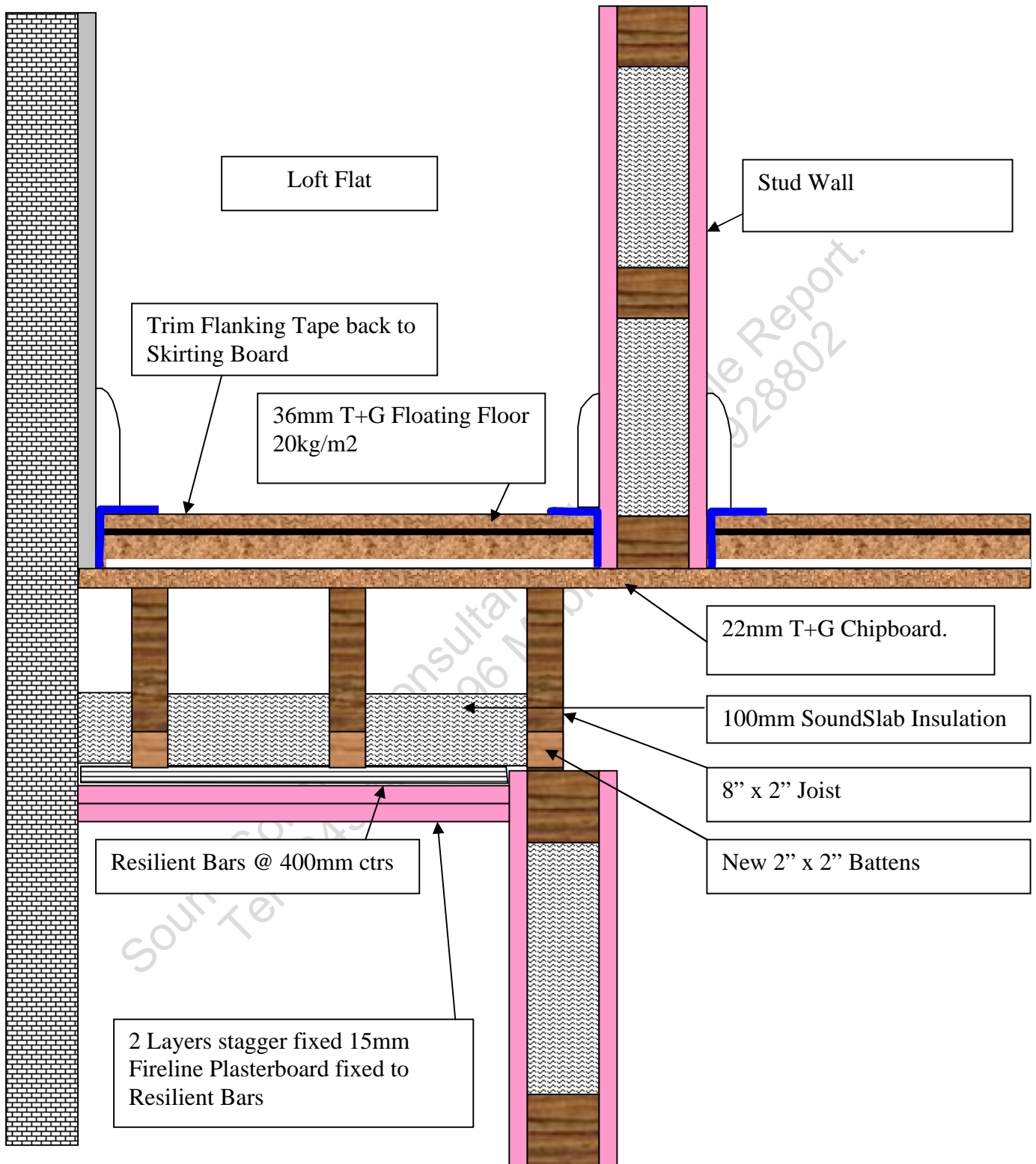
From Above

1. Ensure Sub-floor covers the whole of the top of the joists, right up to the walls
2. Render and plaster all external walls down to the sub-floor and ensure no gaps in floor.
3. Build up internal stud work onto sub-floor
4. Insulate studwork and then apply Plasterboard
5. Apply skim coat plaster to all rooms
6. Apply Isolation Tape to bottom edge of all rooms
7. Fit 36mm Acoustic Floor to all rooms
8. **DO NOT SCREW OR NAIL THIS FLOORING**
9. Stagger joints of boards.
10. Glue joints and seal **ALL GAPS** with Sealant.
11. Ensure new floor surface is completely water tight
12. Ensure skirting board sits onto Flanking tape and not directly onto flooring

From Below

1. Screw fix 2" x 2" batten to underside of joists
2. Install 4" (100mm) SoundSlab Insulation between joists
3. Fit Resilient Bars across (90deg) the underside of the new joists
4. (Screw small flat of Resilient Bar joists)
5. **Stagger** fix 2 Layers of 15mm Fireline Plasterboard to the underside of the Resilient Bars
6. **DO NOT SCREW THROUGH PLASTERBOARD INTO BATTENS**
7. Seal around edge of both layers of plasterboard to ensure no gaps.
8. Ensure ceiling is completely watertight.
9. Do not fit recessed ceiling lights in this ceiling

Please see detail cross section as below



This is a simplified representation of the layout, it is not to scale and should only be used for reference purposes.

Materials Required for above

1. Elco 36 Acoustic Flooring 2.4m x 0.6m x 36mm
2. Roll Flanking Tape (50m x 6mm x 120mm)
3. Bottles Joint Adhesive (1ltr Bottles)
4. Tubes Acoustic Sealant (380ml Tubes)
5. Packs (2.4m² per pack) 100mm SoundSlab Insulation
6. Resilient Bars (3m x 65mm x 15mm)
7. Sheets (2.88m² per sht) 15mm Firecheck Plasterboard 2.4m x 1.2m

All prices exclude Vat

(Inc delivery to site)

I have assumed you will purchase timber and fixings locally

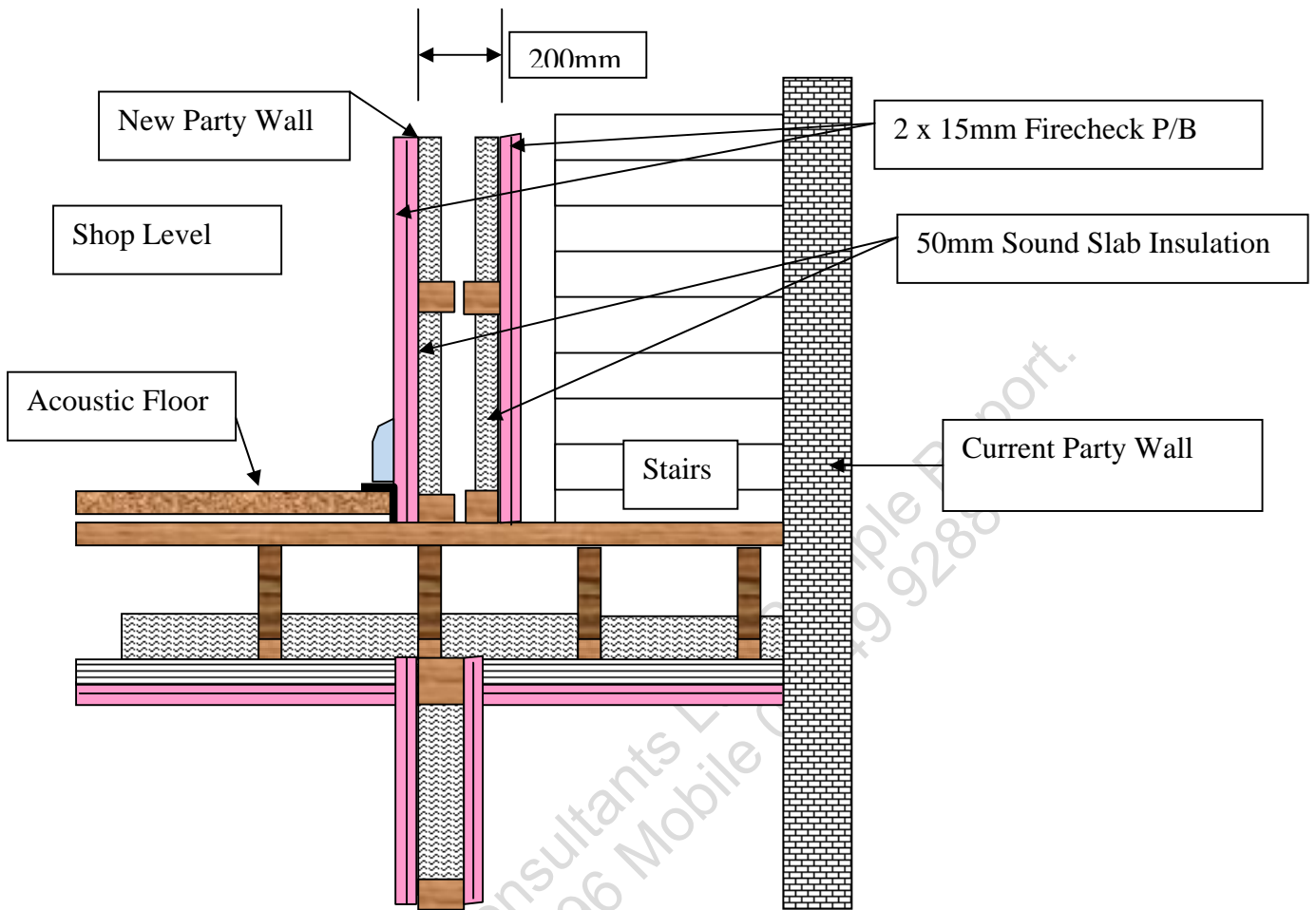
2. Internal Party Walls

Under Approved Document E, you are required to insulate against Airborne noise in all walls that separate any part of a flat with another flat or communal area, in practice however we would only test between habitable rooms ie Bedroom to bedroom or living room to living room.

The client is creating several such a Party Walls in this conversion, they will separate the stairs from each Flat at every level. The standard method of construction of a Party Wall is using 2 independent timber studs as follows:

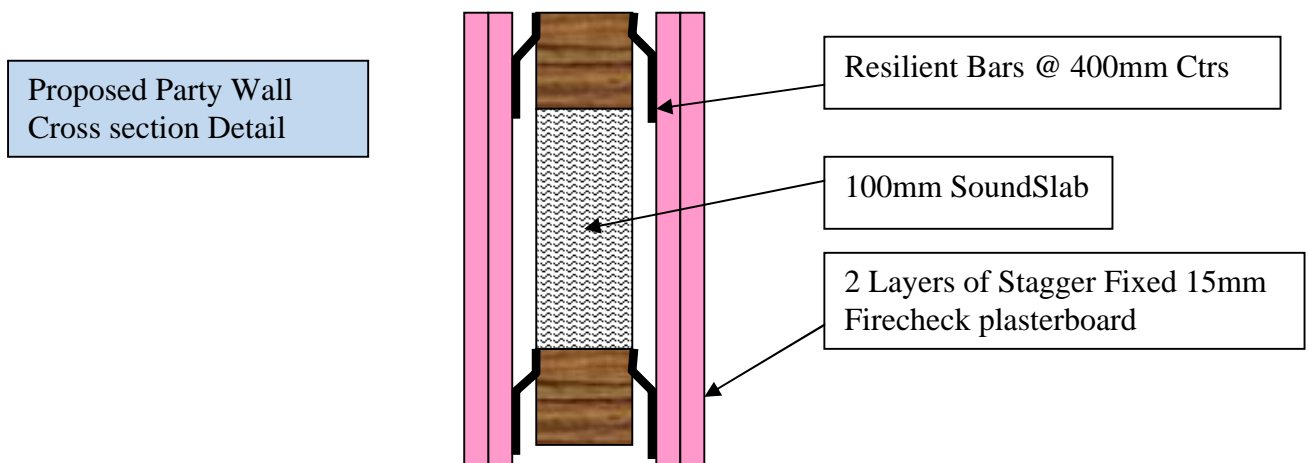
1. Create 2 No. Independent Studs in 3" or 4" x 2" Timber, fill studs with 50mm SoundSlab and then face both outer faces of studs with 2 layers of stagger fix 15mm Firecheck Plasterboard. Ensure that you have a minimum of 200mm between inner layers of plasterboard Finally apply skim coat plaster. You must ensure that these studs do not physically touch each other.

Standard Party Wall Construction Detail



You will notice that the stud fixes to the underside of the joists and onto the sub-floor above with the acoustic floor being fitted up against this new wall. An alternative method of creating a Party Wall would be using 9" concrete blocks laid flat with 13mm of render and plaster both sides, however these blocks must have minimum density of 1350kg/m³.

In practice you will not be able to achieve this as you don't have sufficient Room, so I would suggest that you utilize your existing 4" x 2" Studwork and carry out the following changes



The above work should provide a reasonable amount of Sound Insulation whilst keeping wall thickness to a minimum. I suggest you get approval from Building Control for the above prior to carrying out the work.

3. Internal Stud Work

There is no requirement here except for the standard Rw 40 dB Wall that would normally consist of a 4" x 2" stud and a single layer of plasterboard with 50mm 10Kg/m³ Insulation, however I would suggest that you consider that where you have noise sensitive areas ie between bathroom and bedrooms then you should consider adding an additional layer of plasterboard both sides of the wall as well as using a higher density insulation such as SoundSlab as this will all provide extra Sound insulation.

All internal stud work should be built onto the sub floor and plastered right down to sub-floor level, with the Acoustic floating floor only being added once all plastering has been completed.

4. Additional Flanking routes ie Steel Beam and fireplaces etc

In conversions such as these, there are always other routes that the sound will try to take during the test, the common Flanking routes are:

- a. Internal 4" brick walls that run vertically through the building adjacent to test rooms.
- b. Open fire places on both levels
- c. Steel beams
- d. Service pipe work running through Party Floor
- e. Electric Sockets in Separating walls

a. Internal walls

There are no internal Walls that run up through the property as the client is adding supporting steel work to strengthen the building. No treatment is therefore required under this section.

b. Open Fireplaces

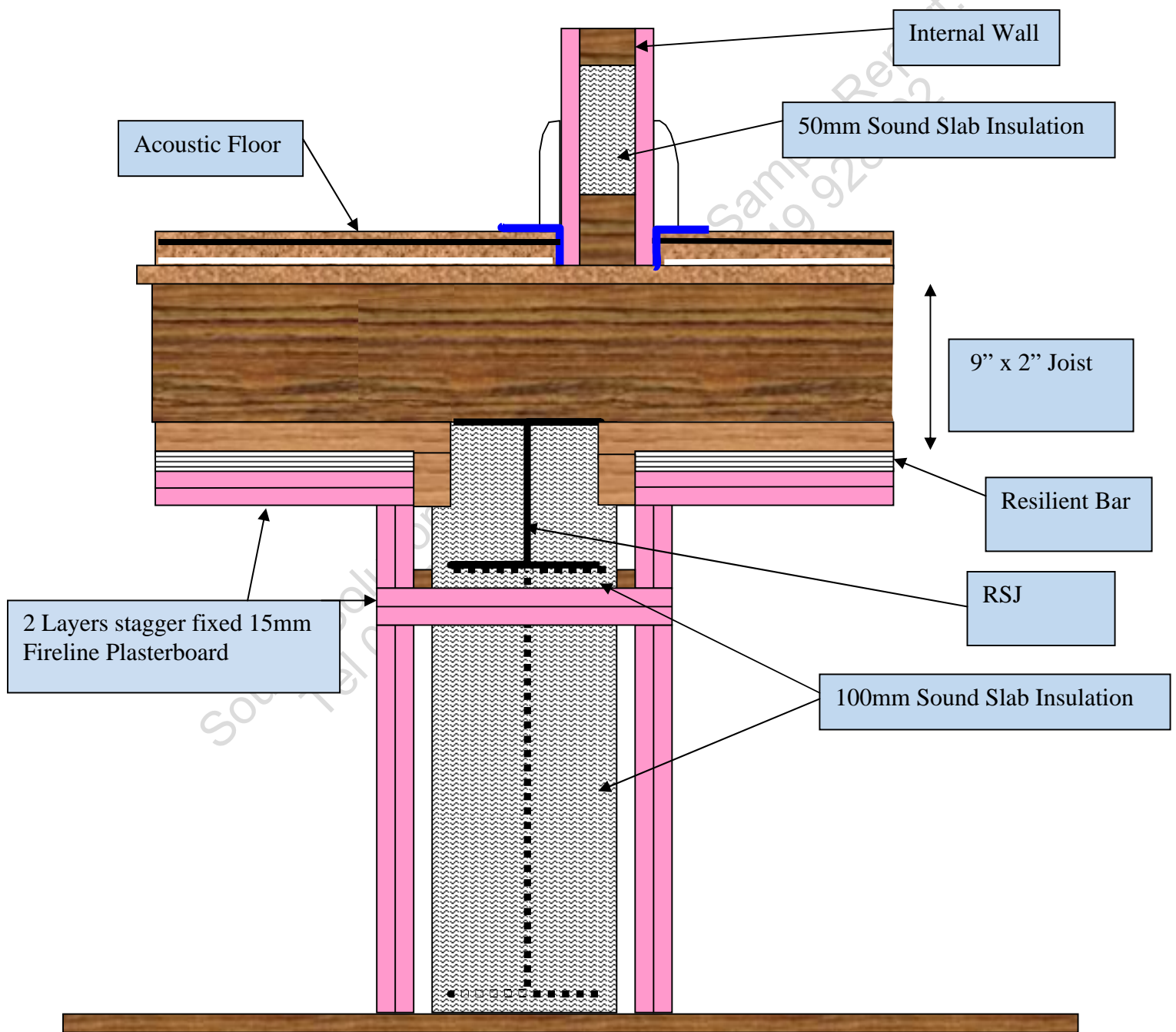
As all fireplaces and chimney breasts have been removed then no further treatment is required.

c. Steel Beams

There are several steel beams currently in place, these should all be insulated where exposed with Sound Slab insulation before being boxed in with plasterboard.

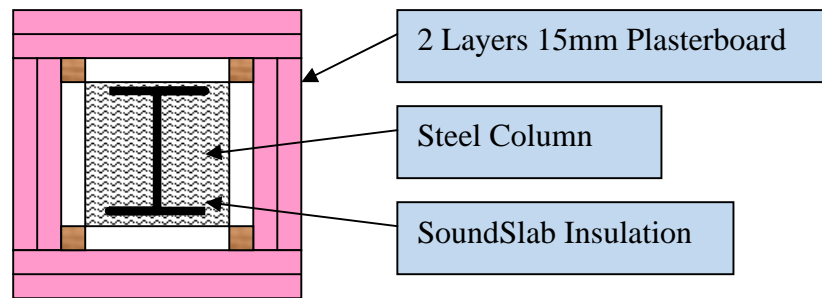
Please see cross section diagram of treatment as below.

Steel Treatment



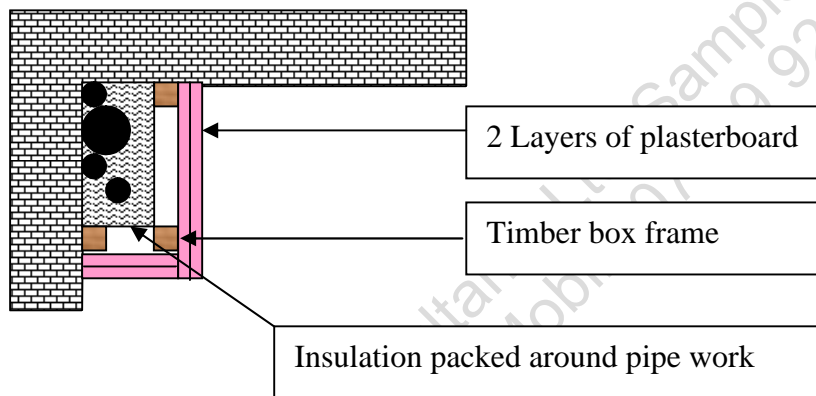
Where vertical steel columns will be exposed they should be completely boxed in as follows:

Plan view of column treatment



d. Service pipe work runs

I understand that all services will be taken down the wall on each level so there will need to be treatment of these areas, please see plan view of suitable treatment below:



d. Electric Sockets in Separating walls

Under Approved Document E guidelines you are advised not to put sockets in both sides of a Stud Party Wall, as sound will try to break through at these points. As there are no Flat to Flat stud Party Walls then this should not be an issue here.

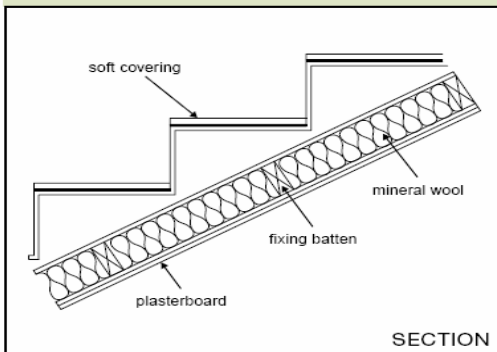
5. Treatment of Stairs

Where a communal staircase is located directly above another Flat, then this should also be treated, however it will not require testing. Because of the layout I understand that the underside of the stairs will always be closed in, if this turns out not to be the case then there is a standard detail within Approved Document E. with regard to this situation. Please see below.

Where there is no cupboard under the stair construct an independent ceiling below the stair (see Floor treatment 1).

4.38 For fire protection where a staircase performs a separating function refer to Building Regulation Part B - Fire safety.

Diagram 4-8: Stair treatment



Stair treatment: Stair covering and independent ceiling with absorbent material

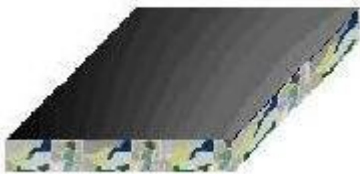
4.35 Stairs are subject to the same sound insulation requirements as floors where they perform a separating function.

4.36 The resistance to airborne sound depends mainly on the mass of the stair, the mass and isolation of any independent ceiling and the airtightness of any cupboard or enclosure under the stairs. The stair covering reduces impact sound at source.

4.37 Stair covering and independent ceiling with absorbent material

Lay soft covering of at least 6mm thickness over the stair treads. Ensure it is securely fixed (e.g. glued) so it does not become a safety hazard.

You can see from these sections that you are advised to both create an independent ceiling below the stairs as well as adding an impact reducing material on the stairs. The advantage of putting Sound Reduction Mats on the stair treads is that it will equalize the difference in floor heights caused by the addition of the acoustic flooring on the landings.



Impact Mats 1.2m x 1.2m x 12mm

Alternatively you could use a good quality thick carpet underlay, it won't work quite as well but it should still satisfy Building Control.

5. Finishing detail check list

I have produced the check list attached for your convenience to ensure that you cover all the major points normally missed during installation, some of the points may not apply to you but most will so please read and follow carefully, if there is a problem with the actual test we will need to know whether these things have been done correctly.

I trust the above is acceptable but if you have any questions regarding the above then please call me on the numbers above, I look forward to hearing from you in regard to supply of the materials suggested and I remain

Yours sincerely

Mark Page A.M.I.O.A. (Associate Member of the Institute Of Acoustics)

Sound Solution Consultants Ltd. Sample Report.
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Please note, the success of any acoustic system, will depend entirely on the construction of the existing building and finishing detail, to the extent that we can not guarantee the level of noise reduction that will actually be achieved. It is the clients responsibility to check the quantities of materials ordered are correct as shortages will have to be paid for separately and to check with Local Building Control on actual testing requirements. Reports and test results can not be released, until payment has been received in full.