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SOUND INSULATION ADVICE

Proposed Development at 'The Bounty', 18 Market Place.
Hinckley, LE10 1NT.

Client: Ankit Thakkar.

Report by

P M Dyson BSc Dip Acoustics MIOA

Acute Acoustics Ltd.

Report Date: 3rd March 2023

Ref: 2766 Hinckley – 18 Market Place SI Advice

Site Visited by: P M Dyson

Site Visit: 22nd February 2023

1.0 INTRODUCTION

Acute Acoustics Ltd (AAL) was instructed by Ankit Thakkar (AT) to carry out preliminary sound insulation testing on the party floor between first floor rooms and the ground floor pub and make recommendations about sound insulation between dwellings on a proposed development site at 'The Bounty', 18 Market Place, Hinckley, LE10 1NT. The ground floor is a public house, the first floor is a manager's flat, the second floor (loft) space is understood to be unused.

The aim of the project is to convert the upper floors to form 2no flats on the first floor and 2no flats on the second floor.

The purpose of the test was to determine whether the tested construction meet the performance standards of The Building Regulations.

This report describes the rooms tested by Peter Dyson on 22/2/2023, the equipment used, the results obtained, and draws conclusions as to the performance of the structure in comparison with the standards required in the current Building Regulations. The detailed result graph appears at the rear of the report. Information about recommended construction details are shown at Appendix 1 together with generic information about resilient battens, mineral wool quilt, mineral wool slabs, acoustic decks, flanking strip, acoustic underlay and acoustic rated back boxes.

2.0 CRITERIA

2.1 Building Regulations – Approved Document E

For airborne sound insulation, Part E of The Building Regulations relies on a “single number value” for assessment of sound insulation; this term is known as $D_{nT,w}+C_{tr}$; $D_{nT,w}$ was the previous single figure term and C_{tr} is a spectrum adaptation term designed to give more weight to the performance of separating structures at low frequencies. For dwellings and rooms for residential purposes formed by a material change of use, the airborne sound insulation should achieve a value of 43 dB $D_{nT,w}+C_{tr}$ or higher. The larger the $D_{nT,w}+C_{tr}$ the better the airborne sound insulation.

For impact sound and separating floors, the required value is an $L'_{nT,w}$ of 64 dB or less for constructions subject to a material change of use. The smaller the $L'_{nT,w}$ the better the impact sound insulation.

2.2 National Planning Policy Guidance - Noise

Paragraph 009 (Reference ID: 30-009-20190722) of NPPG discusses the risk of conflict between new development and existing businesses or facilities and states that:

“Development proposed in the vicinity of existing businesses, community facilities or other activities may need to put suitable mitigation measures in place to avoid those activities having a significant adverse effect on residents or users of the proposed scheme.”

“In doing so, the agent of change will need to take into account not only the current activities that may cause a nuisance, but also those activities that businesses or other facilities are permitted to carry out, even if they are not occurring at the time of the application being made.

The agent of change will also need to define clearly the mitigation being proposed to address any potential significant adverse effects that are identified. Adopting this approach may not prevent all complaints from the new residents/users about noise or other effects but can help to achieve a satisfactory living or working environment and help to mitigate the risk of a statutory nuisance being found if the new development is used as designed (for example, keeping windows closed and using alternative ventilation systems when the noise or other effects are occurring)”.

With that in mind, for separating floors with residential above retail/commercial use with no use of amplified music, some local authorities are specifying $D_{ntw} \geq 60\text{dB}$ and for residential above retail/commercial/entertainment $D_{ntw} + C_{tr} \geq 60\text{dB}$ together with ensuring that structurally transmitted noise is controlled.

2.3 Discussion of Criteria

The ground floor public house plays amplified music from a juke box. On Friday and Saturday evenings, it is understood that the attached single floor ground floor function room has a DJ playing amplified music and this can be fed into the pub speakers.

It is understood from the photos below that the pub is licensed for:

Hinckley & Bosworth Borough Council

PREMISES LICENCE SUMMARY

Licence Number: 07/00434/PRM
Date Licence Issued: 20 July 2022

Part 1 – Premises Details

Pretal address of premises:
The Bounty
18 Market Place
Post town: Hinckley Post code: LE10 1NT
Telephone number: -

Where the licence is time limited the dates
Not applicable

Licensable activities authorised by the licence

Indoors
Sale of Alcohol
An exhibition of a film
Indoor Sporting Events
A performance of live music
Any playing of recorded music
A performance of dance
Entertainment of a similar description to a performance of live music, any playing of recorded music or a performance of dance
Provision of late-night refreshment

Outdoors
Provision of late-night refreshment

The times the licence authorises the carrying out of licensable activities

Activity	Days	Times
Sale of Alcohol	Monday to Thursday	10:00 to 03:00
Indoor Sporting Events	Friday to Saturday	10:00 to 03:30
A performance of live music	Sunday	10:00 to 01:00
Any playing of recorded music		
A performance of dance		
Entertainment of a similar description to a performance of live music, any playing of recorded music or a performance of dance		
Provision of late-night refreshment	Monday to Thursday	10:00 to 03:00
	Friday to Saturday	10:00 to 03:30
	Sunday	10:00 to 01:00

Seasonal and non-standard times

For an additional 1 hour to the standard finish times on the following days:
Any Sunday prior to a Bank Holiday Monday
Christmas Eve
Boxing Day
New Year's Day
The altering of time due to British Summer Time will be ignored

Opening hours of the premises

Days	Start Time	Finish Time
Monday to Thursday	10:00	03:30
Friday to Saturday	10:00	04:00
Sunday	10:00	01:00

Seasonal and non-standard times

For an additional 1 hour to the standard finish times on the following days:
Any Sunday prior to a Bank Holiday Monday
Christmas Eve
Boxing Day
New Year's Day
The altering of time due to British Summer Time will be ignored

Alcohol is authorised to be supplied and/or sold

Where	Tick relevant box
On the premises	☒
Off the premises	☐

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With that in mind, the recommendations consider that amplified music is performed in the Ground Floor Public House.

3.0 EXISTING CONSTRUCTION & SITE DESCRIPTION

The external walls are 9" brickwork. The existing floors are timber floorboards on timber joists with a lath and plaster ceiling below. There are boxed in sections which may contain steels or timber beams supporting the first floor joists.

The dominant background noise source was low level and constant distant road traffic.

4.0 MEASUREMENTS

4.1 Sound Insulation Test Measurements

Approximate room dimensions were measured on site. Where cupboards were located on walls, they were opened during the measurements. In addition, all the procedures described in Annex B of Approved Document E of the Building Regulations have been followed except when stated otherwise.

For Airborne Sound Insulation Tests

The airborne sound insulation of the separating structures was tested in full accordance with the methodology of ISO 140:1998 Part 4 and single number values for $D_{nT,w}$ & $D_{nT,w+Ctr}$ were calculated using the methodology of ISO 717: 1997 part 1.

The source level for each room was determined according to the following method. The sound sources were placed on stands in the larger of the two rooms and the second source position was at least 1.4m from the first, with neither speaker facing towards the partition tested; the minimum distance from each speaker to any room boundary was at least 500mm and the

minimum difference in those distances was 100mm. The speakers operated simultaneously using separate, uncorrelated, pink noise sources.

A preliminary sweep measurement was made over the course of at least 30 seconds and any differences between adjacent 1/3 octaves, greater than 6 dB, were eliminated by a combination of adjusting the source settings, moving the loudspeakers or by moving diffusers (or furniture). Subsequently 10 second measurements were made at least five microphone positions for both the source and receiver rooms (received levels and background noise measurements).

No microphone position was closer than 0.5m from the room boundaries.

Instrumentation

Details of the measuring instrumentation are shown below:

Instrument	Type	Serial No.	Calibration Cert. No.	Date of Due Calibration
Svan 949	Sound Level Meter	12224	14015832-1c	29/03/2023
Svan SV12L	Preamp	17060	14015832-1c	29/03/2023
Svan SV22	Microphone	4012351	14015832-1c	29/03/2023
Castle GA 607	Calibrator	39893	14015832-1a	29/03/2023
Sound Solutions	Tapping Machine	TP02014	TP02014/12/21	14/12/2023
Prosound	Amplifier	44312	n/a	n/a
Behringer	1/3 stereo graphic EQ	N0607411166	n/a	n/a
Prosound	Speaker	9039009	n/a	n/a
Prosound	Speaker	9039021	n/a	n/a

Reverberation Time Measurements

The reverberation times were determined by using the sound level meter and its internal software. The average value of T20 for six starting pistol impulses at six different source and receiver positions was used.

Reverberation time calculations were made using the “reverse-Schroeder integration method”.

4.2 Pub Music Measurements

Whilst onsite, measurements were made of music playing through the juke box with levels set by pub staff as replicating typical levels of 87-89dBA during a busy evening.

5.0 RESULTS

The full results appear at the rear of the report. The single figure rating values are presented below:

Table 1: Airborne Sound Insulation Results [dB] - A1						Criterion	Results			Pass/
Source	Vol	Receiver	Vol	Element		$D_{nT,w}+C_{tr}$	$D_{nT,w}$	C_{tr}	$D_{nT,w}+C_{tr}$	Fail
	(m3)		(m3)			(dB)	(dB)	(dB)		
GF Pub	450	FF LivRm	53	Floor		≥43	45	-8	37	fail

6.0 ASSESSMENT AND CONCLUSIONS

It can be seen that the tested floor FAILED the sound insulation standards of The Building Regulations by 6dB so significant upgrading of the sound performance of the separating floor will be required.

7.0 RECOMMENDATIONS – SEPARATING FLOORS

7.1 With Live or Amplified Music - Ground Floor/First Floor

A job carried out by AAL on a site with first floor flats above a ground floor bar hosting live bands used the following specification to achieve an airborne sound insulation performance of 64dB Dntw+Ctr (69dB Dntw).

“6mm MDF, 15mm Fireline plasterboard, 18mm T&G chipboard, timber joists, 200mm mineral wool quilt. 400mm void, 2 layers 15mm Fireline plasterboard, 3mm ply, timber floorboards, 300mm x 50mm timber joists, 15mm Fireline plasterboard. Suspended ceiling in pub.”

In this instance, it is recommended that a specification as close as is possible be installed.

Treatment From Below

Within the pub, the existing ceiling to be overboarded with 1 layer 15mm Soundbloc plasterboard; the beams to be overboarded with 1 layer 15mm Soundbloc plasterboard. Below this, an independent timber frame supported on joist hangers, wall plates or timber bearers and 2 layers 15mm Soundbloc plasterboard with 200mm void between. Top of timber frame to be 25mm minimum (preferably 100mm) from underside of upgraded ceiling. 200mm dense mineral quilt infill (minimum density – 10kg/m³) to be installed in the void. Figure 1 at Appendix 1 shows the construction of the independent ceiling but material specifications should be taken from above.

Any steel beams should be boxed in with a rigid material such as plasterboard

or ply lined with 25mm mineral wool quilt unless they are completely hidden by the independent ceiling.

Treatment From Above

Within the first floor rooms, the existing floor to be overboarded with 6mm ply and 2 layers 19mm Gyproc plank. An independent platform floor to be constructed on a wooden frame supported on wall bearers. 200mm mineral wool quilt infill; Floor to comprise 22mm T&G flooring grade chipboard on 19mm Gyproc plank on top of timber frame.

Lining of External Walls

In order to reduce the likelihood of noise flanking via the side walls, all of the inner faces of the external walls on the first floor to be lined with 70mm independent metal stud partitions (set off by some 20mm) with 100mm dense mineral wool quilt behind and 1 layer 12.5mm Soundbloc plasterboard.

7.2 First/Second Floor

With the above treatment in place, ceiling height in first floor rooms will be reduced and prevent significant treatment below the ceiling so the majority of treatment will have to be above in second floor rooms and corridors.

Treatment from Below

Overboard existing ceiling with 1 layer 15mm Soundbloc plasterboard.

Treatment From Above

Floorboards to be made good where necessary and overboarded with 1 layer 8mm ply.

A raised floating heavy platform floor to be installed on top of the ply comprising:

Deep resilient battens infilled with 50mm mineral wool batts (45kg/m³ minimum density). 19mm Gyproc plank and 22mm T&G chipboard on top of resilient battens.

Overall, second floor height would be expected to rise by some 120-130mm above the existing floor height.

8.0 RECOMMENDATIONS – SEPARATING WALLS

At the time of the site visit, it was not possible to determine the exact construction of every internal wall, so recommendations have been included for the likely options. Once the exact construction has been determined, the appropriate course of action can be made from sections 8.1, 8.2 & 8.3 below.

8.1 Existing Walls – 9” Brickwork

Openings (doorways, windows) to be bricked up with equivalent brickwork or 215mm very dense concrete blocks (1800-2200 kg/m³ block density). Apply one layer 12.5mm plasterboard (preferably Soundbloc) on dabs to one room face.

To the other room face, add a 50mm x 50mm timber studwork infilled with 50mm dense mineral wool quilt (10kg/m³ minimum density) and 2no layers 12.5mm Soundbloc plasterboard.

50mm metal frame can be used in place of timber if preferred.

NB. It is important that any continuous void above or below the wall (i.e. ceiling void or floor void) is blocked up with wood, plasterboard or other dense material to prevent noise flanking over or under the wall.

8.2 Existing Walls – 4.5” Brickwork

Any openings (doorways, windows) to be blocked up with 4.5” brick or 100mm dense concrete blockwork and make good where necessary.

Make good any holes, gaps or cracks in plaster and/or brickwork and apply 6mm scratch coat to one side.

To one room face, either a 13mm wet plaster finish OR 6mm scratch coat and one layer 12.5mm Soundbloc plasterboard.

To the other room face, add an independent partition as per Wall Treatment 1 of ADE and shown below at Figure 2 of Appendix 1. The void between the existing wall and panel can be as wide as is required for services and mineral wool quilt but should have a minimum width of 35mm.

50mm metal frame can be used in place of timber if preferred.

8.3 New Separating Walls

It is recommended that Wall Type 4 from ADE, 'Framed Walls with Absorbent Material' is used for new separating walls.

This is shown at Figure 3 of Appendix 1. The two timber studs to have 2 layers of 12.5mm Soundbloc plasterboard to the room face and 50mm (preferably 100mm) dense mineral quilt infill (minimum density – 10kg/m^3) in the cavity.

Do ensure that the minimum distance between the inner faces of the plasterboard to each stud is 200mm so the overall thickness of the wall will be $\approx 250\text{mm}$.

External walls to be stripped at the junction with the new separating walls.

50mm (or wider) metal studs can be used in place of timber studs if preferable.

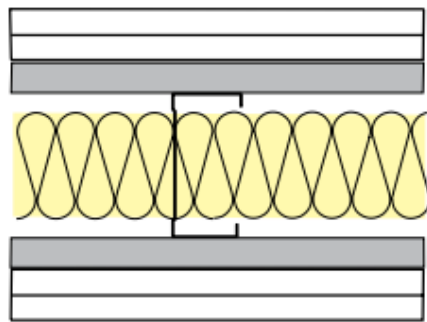
The separating walls should be built off the floor and continue up to the underside of the second floor above or, for second floor separating walls, continue up to the underside of the flat roof.

Do ensure that socket boxes are not mounted back to back but separated by 0.5m and fitted with acoustic rated back boxes.

Option 2.

If space is limited, then a metal stud frame with resilient bars can be used.

The wall to consist of 90mm metal stud with resilient bars to each side and 50mm mineral wool quilt infill, 2 layers 15mm Soundbloc plasterboard to each room face; overall thickness $\approx 180\text{mm}$.



Two layers of board each side of Gypframe 'C'
Studs at 600mm centres with Gypframe RB1
Resilient Bar at 600mm centres to both sides.
50mm Isover Acoustic Partition Roll (APR 1200)
in the cavity. Linings as in table.

External walls to be stripped at the junction with the new separating walls.

Do ensure that socket boxes are not mounted back to back but separated by 0.5m and fitted with acoustic rated back boxes.

The separating walls should be built off the floor and continue up to the underside of the second floor above or, for second floor separating walls, continue up to the roof and firestopped.

It is important that any continuous void below the walls (i.e., floor void) is blocked up with wood, plasterboard or other dense material to prevent noise flanking under the walls.

9.0 MANAGING NOISE FROM WITHIN THE PUB

9.1 Noise Limiter

It is recommended that a music limiter is installed in the pub PA system to restrict music levels to agreed limits ($\approx 88\text{dBA}$) to stop pub staff or DJs from turning up the volume any higher.

Examples include:

1. Lime Technologies – VCX Automatic Volume Limiter
2. Formula Sound – AVC2

Other examples are available.

9.2 Speaker Isolation

All slung speakers in the pub should be mounted on vibration isolation mounts.

Examples include:

Custom Audio Direct - <https://www.customaudiodirect.co.uk/speaker-anti-vibration-mounts>

SOUND INSULATION - GENERAL POINTS TO WATCH

The following section is general advice and not all points may apply in every situation.

10.0 GENERAL POINTS TO WATCH - PARTY WALLS

The following section is general advice and not all points may apply in every situation.

10.1 Sound Transmission Paths

With regard to the party walls, the potential sound transmission paths that can allow sound to pass from one room to another are:

- Directly through the walls, due to poor intrinsic performance of the partition.
- Sound flanking over the top of the wall via a roof/ceiling void.
- Sound flanking around the walls along the external walls.
- Sound flanking under the wall via a floor void, or a continuous floating screed (probably only for lightweight party walls).
- Sound flanking around the walls, via the doors and corridor.

11.0 GENERAL POINTS TO WATCH - PARTY FLOORS

11.1 Sound Transmission Paths

For party floors, the potential sound transmission paths that can allow sound to pass from one room to another are

1. Poor intrinsic performance of the floor/ceiling.
2. Sound flanking around the walls via the external wall.
3. Sound flanking through the floor via openings for pipework and service ducts.
4. No resilient component to reduce impact noise or the resilient component has been compromised.

11.3 Flanking via openings for pipework and service ducts.

Approved Document E gives guidance on this in section 3.79-3.81

3.79 *Pipes and ducts that penetrate a floor separating habitable rooms in different dwellings should be enclosed for their full height in each dwelling.*

3.80 *The enclosure should be constructed of material having a mass per unit area of at least 15 kg/m². Either line the enclosure, or wrap the duct or pipe within the enclosure, with 25 mm unfaced mineral wool.*

3.81 *Leave a small gap (approx. 5 mm) between the enclosure and floating layer and seal with sealant or neoprene.*

ISO 140-4:Part 4 - Standardised level Difference			
Field measurements of airborne sound insulation between rooms			
Client:	Ankit Thakkar	Test Date	22/02/2023
Type	Floor	Version	2.50
Site	18 Market Place, Hinckley, LE10 1NT	Source Rm	GF Pub
Cnstrn	Timber	Receiver Rm	FF LivRm
Room vols [m3]			
Source	450.0		
Rec	53.0		

Freq Hz	D _{nT} [1/3 oct] dB
50	--
63	--
80	--
100	21.3
125	25.3
160	27.3
200	30.0
250	37.5
315	36.6
400	39.4
500	43.0
630	44.8
800	49.0
1000	52.9
1250	55.7
1600	60.9
2000	61.0
2500	58.8
3150	≥ 59.5
4000	--
5000	--

Background noise

Traffic

D _{nT,w} (C; C _{tr})	45 (-2; -8) dB	D _{nT,w} + C _{tr}	37 dB
Evaluation based on field measurement results obtained in one-third octave bands by an engineering method			

Test No.	2766 -A1	Test Institute: Acute Acoustics Ltd
ANC Test	N/A	
Date of Report	03-Mar-23	Signature:

E DWELLING-HOUSES AND FLATS FORMED BY MATERIAL CHANGE OF USE

Floor treatment 1: Independent ceiling with absorbent material

4.26 The resistance to airborne and impact sound depends on the combined mass of the existing floor and the independent ceiling, the absorbent material, the isolation of the independent ceiling and the airtightness of the whole construction.

4.27 Independent ceiling with absorbent material (see Diagram 4-3)

- at least 2 layers of plasterboard with staggered joints, minimum total mass per unit area 20 kg/m^2
- an absorbent layer of mineral wool laid on the ceiling, minimum thickness 100 mm, minimum density 10 kg/m^3 .

The ceiling should be supported by one of the following methods:

- independent joists fixed only to the surrounding walls. A clearance of at least 25 mm should be left between the top of the independent ceiling joists and the underside of the existing floor construction, or
- independent joists fixed to the surrounding walls with additional support provided by resilient hangers attached directly to the existing floor base.

Note: This construction involves a separation of at least 125 mm between the upper surface of the independent ceiling and the underside of the existing floor construction. However, structural considerations determining the size of ceiling joists will often result in greater separation. Care should be taken at the design stage to ensure that adequate ceiling height is available in all rooms to be treated.

4.28 Where a window head is near to the existing ceiling, the new independent ceiling may be raised to form a pelmet recess. See Diagram 4-4.

4.29 For the junction detail between floor treatment 1 and wall treatment 1, see Diagram 4-5.

4.30 Points to watch

Do

- a. Do remember to apply appropriate remedial work to the existing construction.
- b. Do seal the perimeter of the independent ceiling with tape or sealant.

Do not

- a. Do not create a rigid or direct connection between the independent ceiling and the floor base.
- b. Do not tightly compress the absorbent material as this may bridge the cavity.

Diagram 4-3: Floor treatment 1

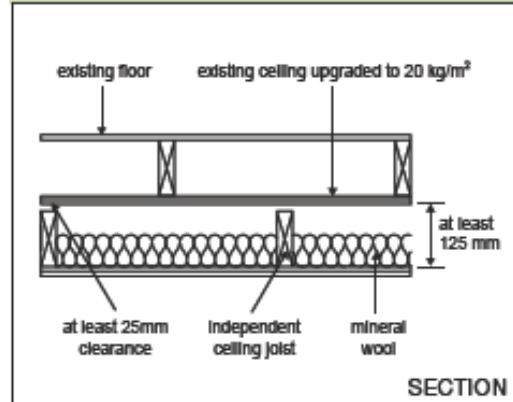


Diagram 4-4: Floor treatment 1 - high window head detail

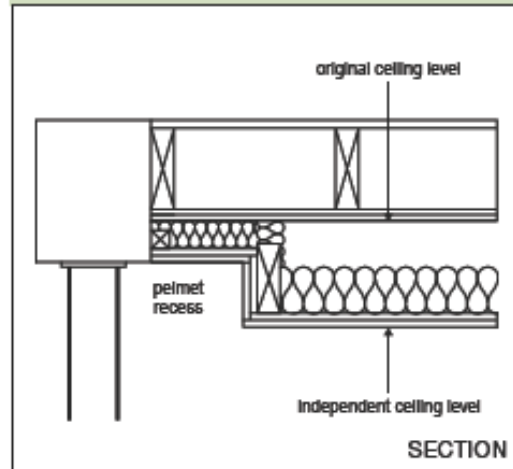


Figure 1: Floor Treatment 1

DWELLING-HOUSES AND FLATS FORMED BY MATERIAL CHANGE OF USE

E

Wall treatment 1: Independent panel(s) with absorbent material

4.22 The resistance to airborne sound depends on the form of existing construction, the mass of independent panel(s), the isolation of the panel(s) and the absorbent material.

Construction

4.23 The independent panel may be used on one side of the existing wall only where the existing wall is masonry, and has a thickness of at least 100 mm and is plastered on both faces. With other types of existing wall the independent panels should be built on both sides.

4.24 Independent panel(s) with absorbent material (see Diagram 4-2)

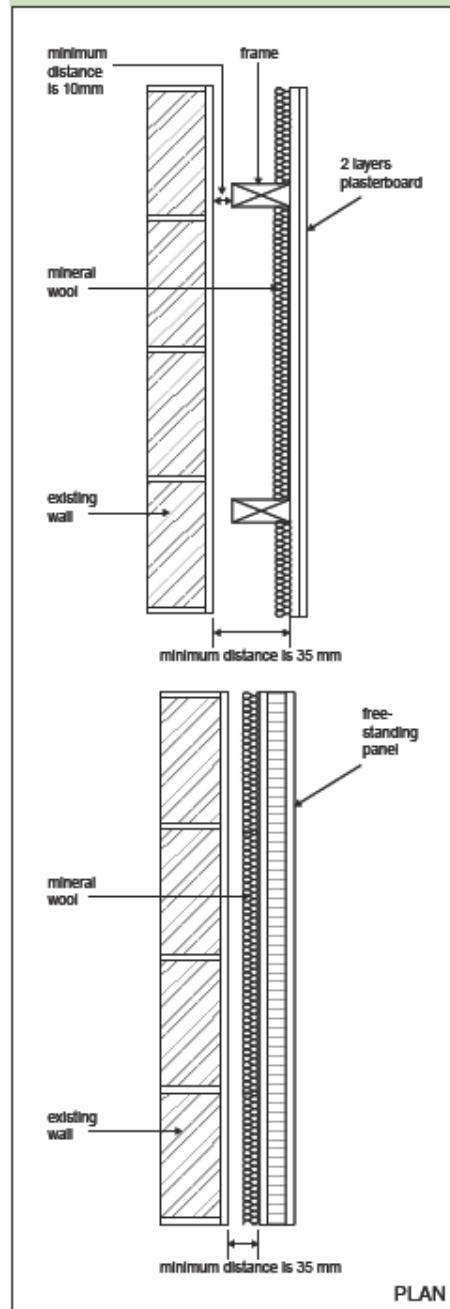
- minimum mass per unit area of panel (excluding any supporting framework) 20 kg/m^2
- each panel should consist of at least 2 layers of plasterboard with staggered joints
- if the panels are free-standing they should be at least 25 mm from masonry core
- if the panels are supported on a frame there should be a gap of at least 10 mm between the frame and the face of the existing wall
- mineral wool, minimum density 10 kg/m^3 and minimum thickness 35 mm, in the cavity between the panel and the existing wall

4.25 Points to watch**Do**

- Do ensure that the independent panel and its supporting frame are not in contact with the existing wall.
- Do seal the perimeter of the independent panel with tape or sealant.

Do not

Do not tightly compress the absorbent material as this may bridge the cavity.

Diagram 4-2: Wall treatment 1**Figure 2: Wall Treatment 1**

SEPARATING WALLS (NEW BUILDINGS)

E

Wall type 4: Framed walls with absorbent material

2.141 In this guidance only a timber framed wall is described. For steel framed walls, seek advice from the manufacturer.

2.142 The resistance to airborne sound depends on the mass per unit area of the leaves, the isolation of the frames, and the absorption in the cavity between the frames.

Construction

2.143 The construction consists of timber frames, with plasterboard linings on room surfaces and with absorbent material between the frames.

2.144 One wall type 4 construction (type 4.1) is described in this guidance.

2.145 Details of how junctions should be made to limit flanking transmission are also described in this guidance.

2.146 Points to watch

Do

- a. Do ensure that where fire stops are needed in the cavity between frames that they are either flexible or fixed to only one frame.
- b. Do stagger the position of sockets on opposite sides of the separating wall, and use a similar thickness of cladding behind the socket box.
- c. Do ensure that each layer of plasterboard is independently fixed to the stud frame.
- d. Do control flanking transmission from walls and floors connected to the separating wall as described in the guidance on junctions.

Do not

- a. Where it is necessary to connect the two leaves together for structural reasons, do not use ties of greater cross section than 40mm x 3mm fixed to the studwork at or just below ceiling level and do not set them at closer than 1.2m centres.
- b. Do not locate sockets back to back. A minimum edge to edge stagger of 150mm is recommended. Do not chase plasterboard.

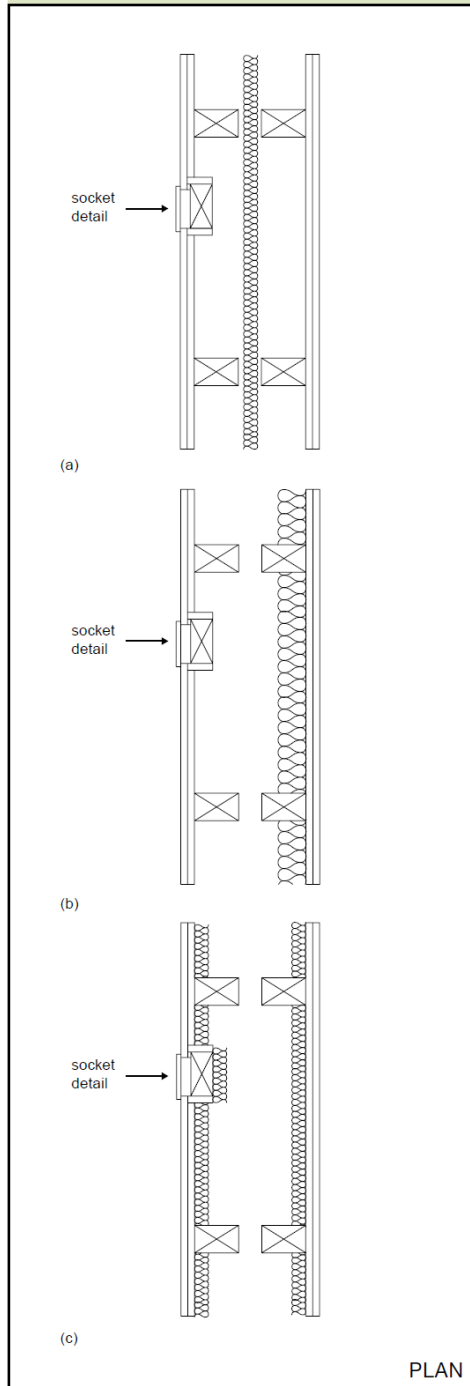
2.147 Wall type 4.1 Double leaf frames with absorbent material (see Diagram 2-37)

- minimum distance between inside lining faces of 200 mm
- plywood sheathing may be used in the cavity as necessary for structural reasons
- each lining to be two or more layers of plasterboard, each sheet of minimum mass per unit area 10 kg/m², with staggered joints
- absorbent material to be unfaced mineral wool batts or quilt (which may be wire reinforced), minimum density 10 kg/m³
- minimum thickness of absorbent material:
 - (a) 25 mm if suspended in the cavity between frames,
 - (b) 50 mm if fixed to one frame,
 - (c) 25 mm per batt (or quilt) if one is fixed to each frame.

Note: A masonry core may be used where required for structural purposes, but the core should be connected to only one frame.

E SEPARATING WALLS (NEW BUILDINGS)

Diagram 2-37: Wall type 4.1



Junction requirements for wall type 4

Junctions with an external cavity wall with masonry inner leaf

2.148 No guidance available (seek specialist advice).

Junctions with an external cavity wall with timber frame inner leaf

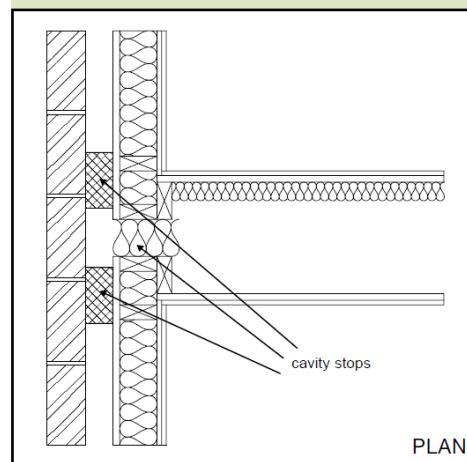
2.149 Where the external wall is a cavity wall:

- (a) the outer leaf of the wall may be of any construction, and
- (b) the cavity should be stopped between the ends of the separating wall and the outer leaf with a flexible closer. See Diagram 2-38.

2.150 The wall finish of the inner leaf of the external wall should be:

- (a) one layer of plasterboard, or
- (b) two layers of plasterboard where there is a separating floor
- (c) each sheet of plasterboard of minimum mass per unit area 10 kg/m^2 , and
- (d) all joints should be sealed with tape or caulked with sealant.

Diagram 2-38: Wall type 4 – external cavity wall with timber frame inner leaf



Junctions with an external solid masonry wall

2.151 No guidance available (seek specialist advice).

SEPARATING WALLS (NEW BUILDINGS)

E

Junctions with internal framed walls

2.152 There are no restrictions on internal walls meeting a type 4 separating wall.

Junctions with internal masonry walls

2.153 There are no restrictions on internal framed walls meeting a type 4 separating wall.

Junctions with internal timber floors

2.154 Block the air paths through the wall into the cavity by using solid timber blockings or continuous ring beam or joists.

Junctions with internal concrete floors

2.155 No guidance available (seek specialist advice).

Junctions with timber ground floors

2.156 Block the air paths through the wall into the cavity by using solid timber blockings or a continuous ring beam or joists.

2.157 See Building Regulation Part C - Site preparation and resistance to moisture, and Building Regulation Part L - Conservation of fuel and power.

Junctions with concrete ground floors

2.158 The ground floor may be a solid slab, laid on the ground, or a suspended concrete floor. A concrete slab floor on the ground may be continuous under a type 4 separating wall. A suspended concrete floor may only pass under a wall type 4 if the floor has a mass per unit area of at least 365 kg/m².

2.159 See Building Regulation Part C - Site preparation and resistance to moisture, and Building Regulation Part L - Conservation of fuel and power.

Junctions with ceiling and roof space

2.160 The wall should preferably be continuous to the underside of the roof.

2.161 The junction between the separating wall and the roof should be filled with a flexible closer.

2.162 The junction between the ceiling and the wall linings should be sealed with tape or caulked with sealant.

Where the roof or loft space is not a habitable room and there is a ceiling with a minimum mass per unit area 10 kg/m² and with sealed joints, either:

- (a) the linings on each frame may be reduced to two layers of plasterboard, each sheet of minimum mass per unit area 10 kg/m², or
- (b) the cavity may be closed at ceiling level without connecting the two frames rigidly together and then one frame may be used in the roof space provided there is a lining of two

layers of plasterboard, each sheet of minimum mass per unit area 10 kg/m², on both sides of the frame.

2.163 Where there is an external wall cavity, the cavity should be closed at eaves level with a suitable material.

Junctions with separating floors

2.164 There are important details in Section 3 concerning junctions between wall type 4 and separating floors.

Figure 3: Wall Type 4

Generic Product Information

Examples of Mineral Wool Quilt include:

JCW Acoustic Quilt	(https://www.acoustic-supplies.com/)
Knauf Acoustic Mineral Wool RS60	(https://www.ikoustic.co.uk)
Rockwool RWA45	https://www.building-supplies-online.co.uk

Examples of Deep Resilient Battens include:

JCW 80C Concrete Floor Batten- JCW Acoustic Supplies
(<https://www.acoustic-supplies.com/>)

Hush-Batten 70
(<https://www.hushacoustics.co.uk/sound-control-products/hush-batten-70/>)

Profloor Dynamic batten – Proctor
(<https://www.proctorgroup.com/products/profloor-dynamic-batten>)

Examples of Mineral Wool Slabs include:

Hush Slab 100 (available in different thicknesses)	Hush Acoustics https://www.hushacoustics.co.uk/
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Rockwool RWA45 Semi-rigid Slabs (available in different thicknesses)	Various stockists
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Isover Acoustic Slabs (available in different thicknesses)	Isover https://www.isover.co.uk/products/acoustic-slab
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Examples of Acoustic Deck include:

Monarfloor Trideck (35mm thick) – Soundstop UK
<https://www.soundstop.co.uk/ZMKTRIDEC.php>

JCW Acoustic Deck 28 (28mm thick) - JCW Acoustic Supplies
(<https://www.acoustic-supplies.com/>)

Do note that there are thinner, cheaper alternatives available, but these offer less acoustic performance and should be avoided.

Examples of Flanking Strip include:

JCW Acoustic Isolation Strips JCW Acoustic Supplies

Cellecta YELOfon FS30 Flanking Strip Cellecta
https://www.insulationshop.co/cellecta_yelofon_fs30_flanking_strip.html

Hush Flanking Strips Hush Acoustics
<https://www.hushacoustics.co.uk/>

Monarfloor Flanking Band
<http://www.monarfloor.co.uk/products/accessories/monarfloor-flanking-band.aspx>

Examples of Acoustic Underlays include:

Cellecta Deckfon Ultralay 5 - <https://www.cellecta.co.uk/product/deckfon-ultralay-5/>

Acoustilay 3 - <https://www.soundinsulationstore.co.uk/products/acoustilay-3>

JCW Acoustic Impactalay 4551 Timber - <https://www.jcwacousticflooring.co.uk/>

Examples of Acoustic Rated Back Boxes include:

RD Compliant Acoustic Sockets Boxes Sound Reduction Systems
<https://www.soundreduction.co.uk/products/soundproofing-for-walls/acoustic-socket-boxes/>

SRS Socket Boxes

Trim Acoustics

<https://www.trimacoustics.co.uk/product/srs-acoustic-socket-boxes/>

JCW Acoustic & Fire Socket Box Inserts - Double x 35mm

<https://www.insulationsuperstore.co.uk/product/jcw-acoustic-fire-socket-box-inserts-double-x-35mm.html>