PO Box 1030, Warrington, Cheshire WA4 9FJ
t. 01925 723333 www.adcacoustics.co.uk

PJD/C/5868.01

July 2024

Priory Street, Wrexham,
LL11 1SU

Acoustic Design
Summary for The
Building Regulations
Approved Document E.

Prepared for:-

Greener Properties Ltd
18 Bottom Road
Summerhill
Wrexham
LL11 4YX

Report prepared by: Philip Durell MIOA MSc

ADC Acoustics is a trading name of Acoustic Design & Control Limited
Registered Office: One City Place, Queens Road, Chester, CH1 3BQ Registered in England and Wales 5117653

Contents

1.0 Introduction 3
2.0 Building Regulations (amended 2015) 4
2.1 Approved Document E 4
2.1.1. Requirements for this Development 5
2.2 Building Regulations Separating Elements, ADE Requirement E1 6
2.2.1. Sound Insulation and Flanking 6
2.2.2 Party Walls between Apartments 7
2.2.3 Alternative Party Wall Recommendations 7
2.2.4. Floor Treatment 8
2.2.5 Wall Linings to External Walls 9
2.2.6 Lifts and Lift Shafts 10
2.3 Internal Partitions and Floors, ADE Requirement E2. 11
2.4 Apartment Entrance Doors 12
3.0 Build Quality Criteria 13
3.1 Plasterboarding 13
3.2 Resilient Bars (if used) 14
3.3 Acoustic Mastic 15
3.4 Blockwork and Wall Ties 15
3.5 Plasterboard on Dabs for wall linings 17
3.6 Build Order and Inspections 18
3.7 SVPs 18
3.8 Electrical Sockets in Party Walls (Stud Walls only) 19
3.9 Steelwork and Resilient Connections (where applicable) 22
4.0 Reverberation Times (RTs) in common areas, ADE Requirement E3 23
4.1 Acoustic Absorber Classes 23
4.2 Reverberation Requirements for this Development 23
5.0 Conclusions 25

1.0 Introduction

The proposed development at Priory Street, Wrexham, LL11 1SU, consists of a conversion of an existing building to form residential apartments above ground floor commercial and retail units.

The development is to comply with the performance targets for sound insulation stated within the Building Regulations Approved Document E (ADE) 2003 (amended 2015).

ADC Acoustics have been appointed to assess the existing building and provide advice for compliance with the Building Regulations. Planning and other issues will be covered in a separate report.

2.0 Building Regulations (amended 2015)

2.1 Approved Document E

The new version of the Building Regulations Approved Document E: 2003 came into force in July 2003. Among the aspects covered are a range of performance criteria required for Building Regulations approval, with the requirement E1 as stated below:

Requirement

Protection against sound from other parts of the building and adjoining buildings

E1. 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.

ONLINE

A brief summary of the minimum performance criteria needed to meet this requirement is shown below.

Type of Accommodation	Nature of the Building Work	Transmission Path	Type of Party Element	Performance Criterion (dB)
Dwellings	Purpose built	Airborne	Wall	45 $D_{nTw}+C_{Tr}$
			Floor	45 $D_{nTw}+C_{Tr}$
			Stairs	45 $D_{nTw}+C_{Tr}$
		Impact	Floor	62 L'_{nTw}
	Formed by material change of use	Airborne	Wall	43 $D_{nTw}+C_{Tr}$
			Floor	43 $D_{nTw}+C_{Tr}$
			Stairs	43 $D_{nTw}+C_{Tr}$
		Impact	Floor	64 L'_{nTw}
Rooms for residential purposes	Purpose built	Airborne	Wall	43 $D_{nTw}+C_{Tr}$
			Floor	45 $D_{nTw}+C_{Tr}$
			Stairs	45 $D_{nTw}+C_{Tr}$
		Impact	Floor	62 L'_{nTw}
	Formed by material change of use	Airborne	Wall	43 $D_{nTw}+C_{Tr}$
			Floor	43 $D_{nTw}+C_{Tr}$
			Stairs	43 $D_{nTw}+C_{Tr}$
		Impact	Floor	64 L'_{nTw}

Note that, for airborne sound insulation, the LARGER value means better performance, so the values in the above table are MINIMUM performance standards

2.1.1. Requirements for this Development

This development is a conversion and will need to comply with the minimum requirements as highlighted below:

Type of Accommodation	Nature of the Building Work	Transmission Path	Type of Party Element	Performance Criterion (dB)
Dwellings	Purpose built	Airborne	Wall	45 $D_{nTw}+C_{Tr}$
			Floor	45 $D_{nTw}+C_{Tr}$
			Stairs	45 $D_{nTw}+C_{Tr}$
		Impact	Floor	62 L'_{nTw}
	Formed by material change of use	Airborne	Wall	43 $D_{nTw}+C_{Tr}$
			Floor	43 $D_{nTw}+C_{Tr}$
			Stairs	43 $D_{nTw}+C_{Tr}$
		Impact	Floor	64 L'_{nTw}

Acoustic partitions are rated in terms of R_w values, in decibels. The R_w parameter is defined as the weighted standard reduction index and is the level of sound insulation provided by a partition when measured within a laboratory, but with no allowance for flanking sound transmission.

Therefore, in order to achieve the correct $D_{nT,w}$ value on site, a system must be chosen with a higher R_w value. For lightweight partitions, the R_w value should be at least 5 dB higher than the required $D_{nT,w}$ value.

2.2 Building Regulations Separating Elements, ADE Requirement E1

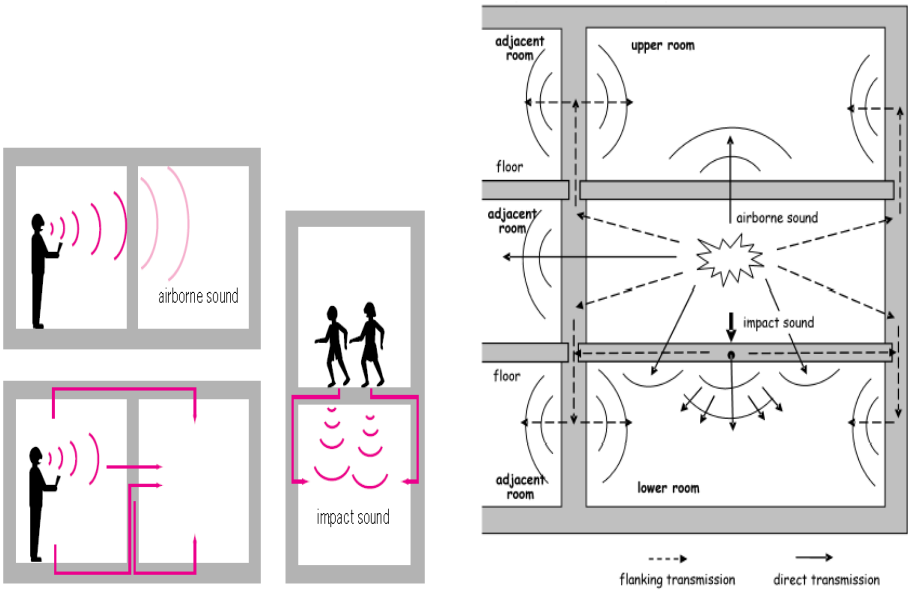
2.2.1. Sound Insulation and Flanking

In general, regulations refer to sound insulation in terms of party walls and floors, which is in itself quite misleading, since it makes everybody think one dimensionally, i.e. all the sound goes through the floor or through the wall.

This is simply not true.

Sound is energy, which is a three-dimensional entity, so instead of walls and floors, a better way to think about sound transfer is to think of it in terms of horizontal and vertical transmission.

The diagrams below demonstrate the various routes for sound transmission within a building:



"Flanking" is simply the transmission of energy via any other route other than the main party element.

All routes for sound transmission must therefore be considered as part of the overall design for good sound insulation, **not** just the party walls and floors.

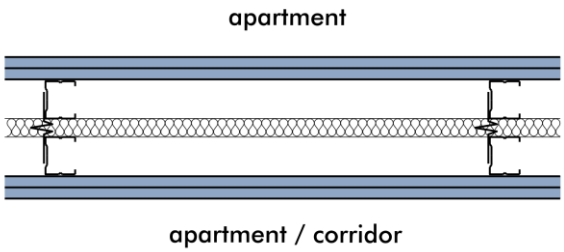
Consideration **must** be given equally to all paths:- i.e. what goes over the top, around the sides and underneath!

Following our recent site visit it is clear that the main routes for sound transmission are through the existing party floor **and** vertical flanking paths via the external walls throughout.

Therefore suitable remedial works **must** be fitted in order to minimise these transmission paths.

2.2.2 Party Walls between Apartments

Currently the proposed party walls are as detailed below:



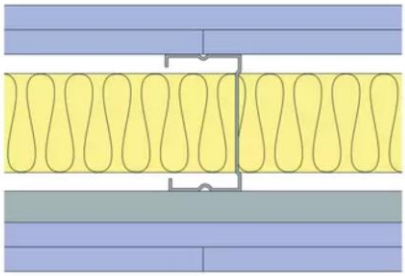
Internal Wall Type 1
Party Wall

- 2 x Layers of 15mm GTEC dB board to both sides of studwork
- 50mm C stud twin frame system (400/600mm centres)
- Acoustic V brace (1500mm centres)
- 25mm glass mineral wool insulation

This party wall is probably excessive in this type of project, and we would advise as below:

2.2.3 Alternative Party Wall Recommendations

Thinnest Possible Solution to ADE (metal stud with resilient bar to one side))



A316008 (EN)

See full details for this specification

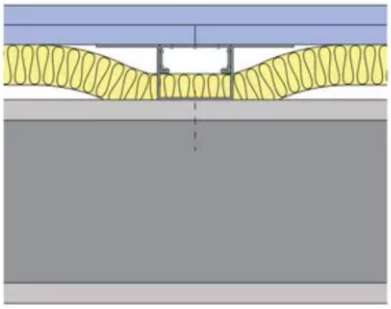
Two layers of Gyproc SoundBloc 12.5mm each side of Gypframe 70 S 50 'C' Studs at 600mm centres with Gypframe RB1 Resilient Bar at 600mm centres to one side. 50mm Isover Acoustic Partition Roll (APR 1200) in the cavity. For heights up to 4000mm.

Fire Integrity (mins)	60	Fire Insulation (mins)	60	Sound Insulation (Airborne) Rw (dB)	61
Sound Insulation (Airborne) Rw + Ctr (dB)	53	Duty Rating	Severe	Maximum Height (mm)	4000
Partition Thickness (mm)	137				

N.B. Please note our comments regarding good construction and the correct installation of Resilient Bars in the Build Quality section of this report.

Existing Party Wall

It is recommended that the existing party wall is made good and lined to one whole side with an independent Gypliner System as detailed below:



B226003 (EN)

See full details for this specification

100mm solid block wall of density 1700 kg/m^3 with 13mm plaster each side and Gypframe GL1 Lining Channel framework fixed to one side to give 35mm cavity with 25mm Isover Acoustic Partition Roll (APR 1200) in the cavity clad with two layers of Gyproc SoundBloc 12.5mm.

Sound Insulation (Airborne) Rw (dB)	60	Sound Insulation (Airborne) Rw + Ctr (dB)	55

The existing opening can then be fully filled with mineral fibre insulation and finished with 2 layers of 15mm Soundbloc plasterboard to be fitted flush to the existing wall.

2.2.4. Floor Treatment

Our site visit highlighted that the existing party floor is performing poorly with regard to sound transmission.

Although 225mm thick, the existing floor lacks mass and contains various airpaths and typically, the recommend solution would be to install a 50mm sand and cement screed with a floor finish on top. However, this scale of remedial works may be unfeasible for this scale of project.

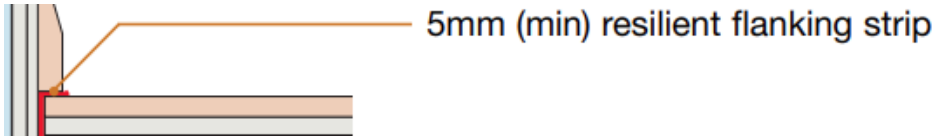
We therefore recommend the following in order to introduce some mass and decoupling into the floor build up:

https://www.cellecta.co.uk/product/hideck-acoustic-overlay-28/

https://www.floorscan.co.uk/product/db-panel-premier/

For the floor treatment, a resilient perimeter flanking strips **must** be installed around the entire perimeter of each individual room.

N.B. The Build Quality Criteria Section within this report provides further important guidance installation of "floating" floor treatments and the correct installation of perimeter flanking strips, please see example detail below:



Ceilings

We would recommend a metal frame system suspended via acoustic hangers, with 2 layers of 15mm SoundBloc plasterboard covered with 100mm acoustic mineral fibre insulation fitted within the ceiling void. The greater the depth of void that can be achieved, the better the level of acoustic performance.

Link to acoustic hangers/brackets:

https://www.british-gypsum.com/products/metal-products/gypframe-gah1-acoustic-hanger

https://pliteq.co.uk/products/sound-control-clip/genieclip-rst/

Please note guidance regarding the use of downlighters:

Downlighters and recessed lighting

Provided there is a minimum ceiling void of 75mm downlighters or recessed lighting may be installed in the ceiling:

- in accordance with the manufacturer's instructions
- at no more than one light per 2m² of ceiling area in each room or see Appendix F
- at centres not less than 0.75m
- into openings not exceeding 100mm diameter or 100x100mm

Particular attention should also be paid to Building Regulations Part B - Fire Safety

2.2.5 Wall Linings to External Walls

It is strongly recommended that **all** external walls are lined with an independent stud system, lining to consist of 2 layers of 12.5mm SoundBloc plasterboard.

N.B. This treatment is essential to minimise any vertical flanking path for sound transmission.

Ideally this would be via a free-standing stud system completely unattached to the external wall.

Example of an alternative system below:



Bookmark this page Sh

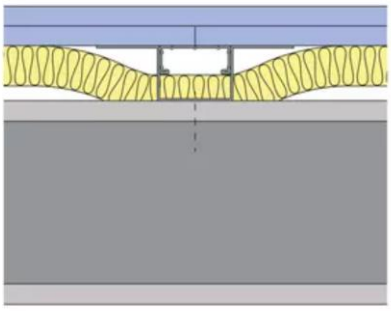
Wall Linings

GypLyner Single

Enhance the energy efficiency and acoustic comfort of your environment with our GypLyner Single metal framed lining system.

SpecSure

CCPi SYSTEM VERIFICATION NUMBER: 001270021/1025



B226003 (EN)

See full details for this specification

100mm solid block wall of density 1700 kg/m^3 with 13mm plaster each side and Gypframe GL1 Lining Channel framework fixed to one side to give 35mm cavity with 25mm Isover Acoustic Partition Roll (APR 1200) in the cavity clad with two layers of Gyproc SoundBloc 12.5mm.

Sound Insulation (Airborne) Rw (dB)	60	Sound Insulation (Airborne) Rw + Ctr (dB)	55

2.2.6 Lifts and Lift Shafts

There are no lifts proposed for this development.

2.3 Internal Partitions and Floors, ADE Requirement E2.

ADE 2003 requirement E2 introduced the following need for internal walls and floors:-

Protection against sound within a dwelling-house etc.

E2. Dwelling-houses, flats and rooms for residential purposes shall be designed and constructed in such a way that:

(a) internal walls between a bedroom or a room containing a water closet, and other rooms; and

(b) internal floors

provide reasonable resistance to sound.

Requirement E2 does not apply to:

(a) an internal wall which contains a door;

(b) an internal wall which separates an en suite toilet from the associated bedroom;

(c) existing walls and floors in a building which is subject to a material change of use.

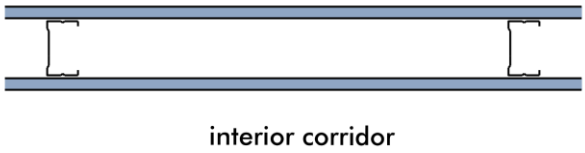
With the minimum laboratory rated requirement being as shown below:

PERFORMANCE E

Table 0.2 **Laboratory values for new internal walls and floors within dwelling-houses, flats and rooms for residential purposes, whether purpose built or formed by material change of use**

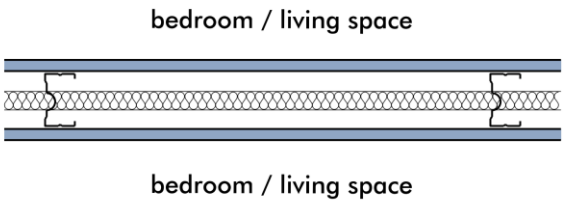
	Airborne sound insulation R_w dB (Minimum values)
Walls	40
Floors	40

Proposed internal walls for this project are as follows:



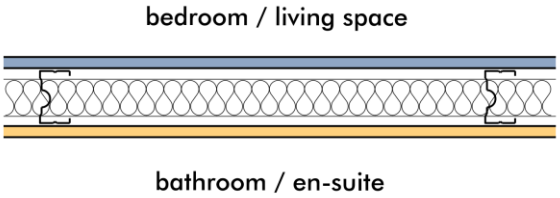
Internal Wall Type 2
Apartment interior wall
Living space/Hallway

- 1 x Layer of 15mm GTEC dB board to both sides of studwork
- 70mm C stud system (400/600mm centres)



Internal Wall Type 3
Apartment interior wall
Living space/Living space

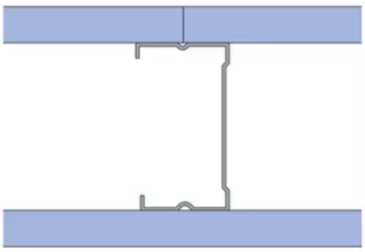
- 1 x Layer of 15mm GTEC dB board to both sides of studwork
- 70mm Acoustic C stud system (400/600mm centres)
- 25mm glass mineral wool insulation



Internal Wall Type 4
Apartment interior wall
Living space/Bathroom

- 1 x Layer of 15mm GTEC dB board to living side of side
- 1 x Layer of 15mm GTEC fire MR board to bathroom side
- 70mm Acoustic C stud system (400/600mm centres)
- 50mm glass mineral wool insulation

However, we would recommend the following internal wall, which is fully compliant with ADE, to be used throughout



A206164 (EN)

See full details for this specification

One layer of Gyproc SoundBloc 12.5mm each side of Gypframe 70 S 50 'C' Studs at 600mm centres. For heights up to 3600mm.

Fire Integrity (mins)	30	Fire Insulation (mins)	30	Sound Insulation (Airborne) Rw (dB)	40
Duty Rating	Medium	Maximum Height (mm)	3600	Partition Thickness (mm)	97

However, requirement E2 **does not** apply to the :

a. an internal wall which contains a door
b. an internal wall which separates an ensuite toilet from the associated bedroom
c. Existing walls and floors in a building which is subject to a material change of use.

Internal Floors

There are no internal floors within the development.

2.4 Apartment Entrance Doors

For compliance with ADE, doorsets onto common corridors are to have good perimeter seals with a minimum mass per unit area of 25 kg/sq. metre and achieve a minimum sound reduction index, R_w of 29 dB.

3.0 Build Quality Criteria

Sound is simply the movement of energy and sound insulation is simply the principle of containment of that energy be it airborne or structure borne.

Energy will always take the easiest and most efficient path to travel by between two areas. Therefore, any acoustic detail is only as good as the quality of its construction on site.

In order to ensure a high quality of workmanship on site, it is strongly recommended that the following criteria are issued to the installation contractors.

It is also strongly recommended that regular site inspections are conducted to monitor build quality.

3.1 Plasterboarding

Broken or damaged boards must **not** be used.

All joints **must** be tightly butted with secondary layered boards positioned so that joints completely overlap with first layer boards.

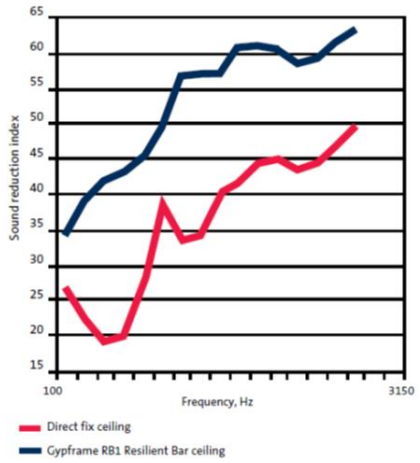
Any holes for electrical cables and any other services **must** be neat and fully sealed with fire stops, expanding foam and acoustic mastic.

Cable runs are not to pass through party walls. Cable runs must run along corridors and then into the teaching area concerned.

All joints **must** be tightly butted with secondary layered boards positioned so that joints are staggered and completely overlap with first layer boards.

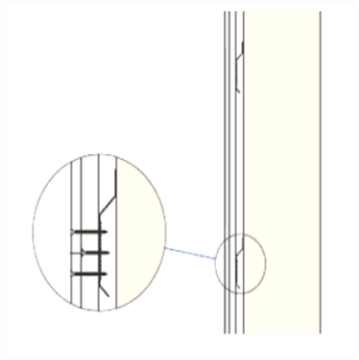
3.2 Resilient Bars (if used)

Resilient bars can provide a significant improvement rather than fitting directly to the joist, see graph below:



Airborne sound insulation benefit of resilient bars (ceiling)

Resilient bars must be correctly installed throughout as shown below:



The correct length of screw **must** be used. If the screw is too long, it significantly increases the risk of bridging, see example picture below:



Screw fixings **must not** screw through the resilient bar into the building structure as shown below:



Incorrect installation of the resilient bars can reduce the acoustic performance by up to **8dB**.

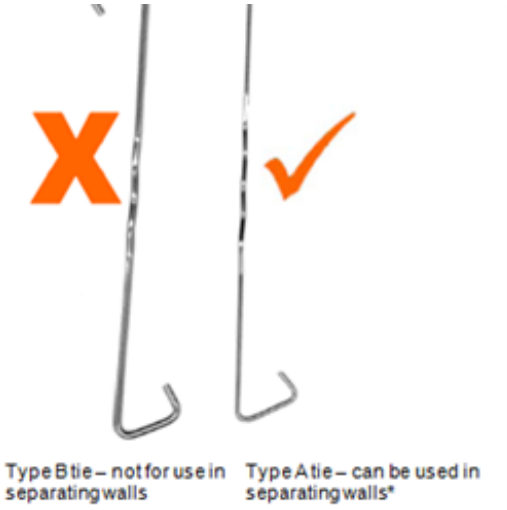
Please refer to section 3.12 of this report for alternatives to resilient bars.

3.3 Acoustic Mastic

Acoustic mastic is simply **non-setting mastic.** For acoustic purposes, the aim is to achieve a seal that will always stay flexible and not set hard and crack thereby generating a route for airborne sound transmission. Therefore, any non-setting mastic will be suitable.

3.4 Blockwork and Wall Ties

All wall ties must be as thin as structurally permissible (Type “A”), see below



Wall ties **must** be kept clean and free from any mortar drops throughout construction and it is therefore strongly recommended that a “cavity lath” is used throughout the blockwork construction.



X Mortar accumulating on cavity insulation – poor, possibly inadequate, sound insulation to be expected

✓ Clean cavity – good sound insulation to be expected

Blockwork Joints and Parge Coats

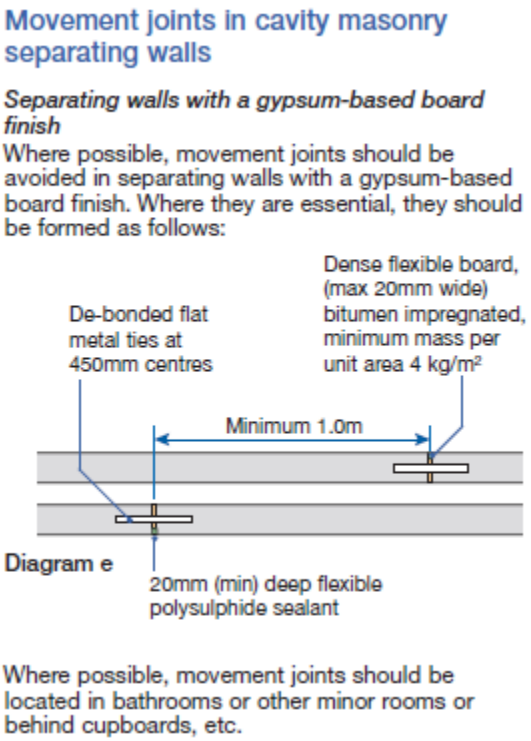
All blockwork joints must be fully mortared throughout, both horizontally and vertically.

Whilst parge coats are useful in sealing up any gaps within the blockwork prior to lining, if the quality of the blockwork joints is very good throughout, then the parge coat may be omitted.

However, checks should be made to see if a parge coat is still required for Air Tightness or other purposes.

Movement Joints in cavity block walls

Please see example detail below for information:



3.5 Plasterboard on Dabs for wall linings

This form of construction is the most common cause of failure with regard to sound insulation performance.

The reason behind this being that, if the dabs are too small and positioned at too greater distance apart, then the plasterboard sheet vibrates and acts like a loudspeaker. When this occurs, it can drastically reduce the sound insulation performance of a party wall. Therefore, the dabs **must** be correctly applied. The following is a minimum specification for correct spacing of the dabs per typical 900 mm board.

Dabs to be 50mm to 75mm wide and approx. 250mm long. Dabs to be applied in three vertical rows. Minimum area of contact to be 20%. Perimeter edges of board to have continuous band of bonding adhesive.

See also British Gypsum site guidance document below:



4

- Trowel apply a continuous fillet of Gyproc Dri-Wall Adhesive to the perimeter of the wall, services and openings for optimum airtightness.
- Commence drylining from a window / door reveal or internal angle.
- Trowel apply adhesive to form dabs 50mm to 75mm wide and about 250mm long.



5

- Position dabs of Gyproc Dri-Wall Adhesive in three vertical rows to receive the first board.
- Ensure that the dabs adjacent to a board joint are approximately 25mm in from the edge to avoid bridging the joint.
- Apply intermediate dabs at ceiling level.



6

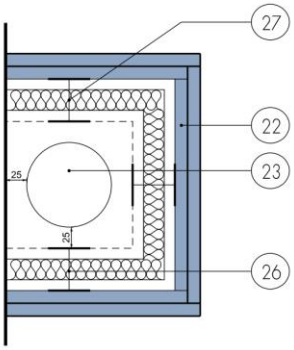
- Apply a continuous band of Gyproc Dri-Wall Adhesive at skirting level.

3.6 Build Order and Inspections

Party walls must be fitted first, then ceilings, then wall lining systems and finally floating floor treatments. This is to ensure that wall linings, floating floors, ceilings or corridor walls **do not** continuously “fly past” or over party walls.

3.7 SVPs

Proposed boxing in of pipework for this project is as shown below:



TYPICAL INTERNAL PIPE BOXING DETAIL SINGLE BOARDED (1:5 PLAN)

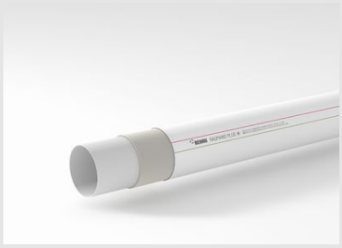
However, this is primarily to protect the integrity of the sound insulation between residential units, rather than preventing egress of noise from running water, which can sometimes become an issue for long, vertical drop heights.

Typical mitigation methods to minimise noise emissions can involve the following:

Reducing the number of tight bends in the pipework and changing of direction in water flow, sound attenuated pipes and resilient acoustic brackets, see example products below:

Noise protection: verified by the Fraunhofer Institute

Our RAUPIANO Plus acoustic soil and waste system comes in significantly below the required values of VDI 4100 sound protection guideline, with sound levels of just 17 dB(A)* . Quieter than a whisper, because all the components - pipe, fittings and jointing technology - helps to ensure that RAUPIANO PLUS works without any noise nuisance.



Sound-absorbing multi-layer technology

The rigid middle layer of RAUPIANO pipes achieves a pipe density of 1.9 g/cm³ through sound-absorbing filler materials, therefore substantially reducing the sound level.



Less impact noise in corners

RAUPIANO bends have thicker walls which reduces the generation of airborne noise. The hydraulically optimised inner contours of the branches minimise flow noise.



Patented acoustic bracket isolates structure-borne noise

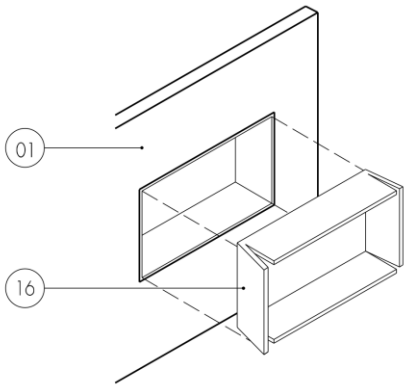
The acoustic bracket forms the connection to the wall, this significantly minimises structure-borne sound transmission to the installation wall.

** Performance with the patented acoustic bracket from REHAU (P-BA 274/2016)*

For this development, it is recommended that SVPs are located within non-noise sensitive areas such as bathrooms and store cupboards and will therefore be unlikely to cause an issue.

3.8 Electrical Sockets in Party Walls (Stud Walls only)

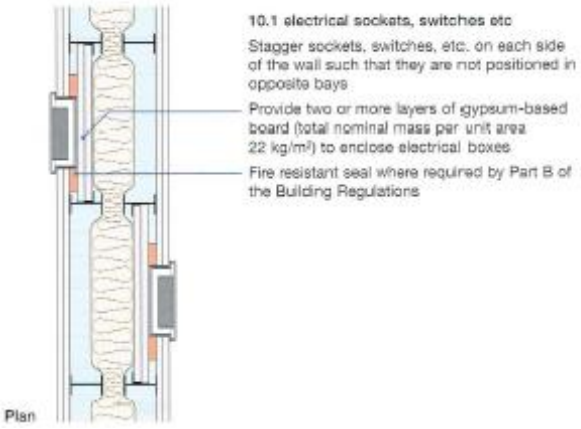
Drawing detail for protection of electrical sockets is as shown below:



LETTER BOX OPENING FOR ELECTRICAL SOCKETS
(NTS AXO)

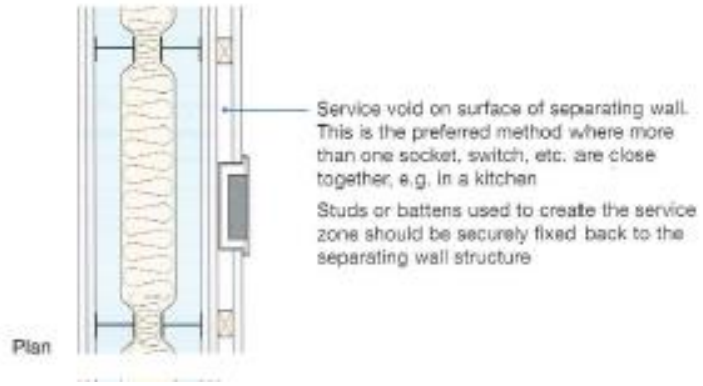
Penetrations through party walls **must** be kept to an absolute minimum through any party wall. The golden rule is that electrical sockets **must not** be positioned on party walls unless absolutely unavoidable. If sockets are to be positioned onto party walls they must be staggered and acoustically protected, see diagram below:

10. Services and sockets in the separating wall



Any holes for electrical cables **must** be neat and sealed with acoustic mastic.

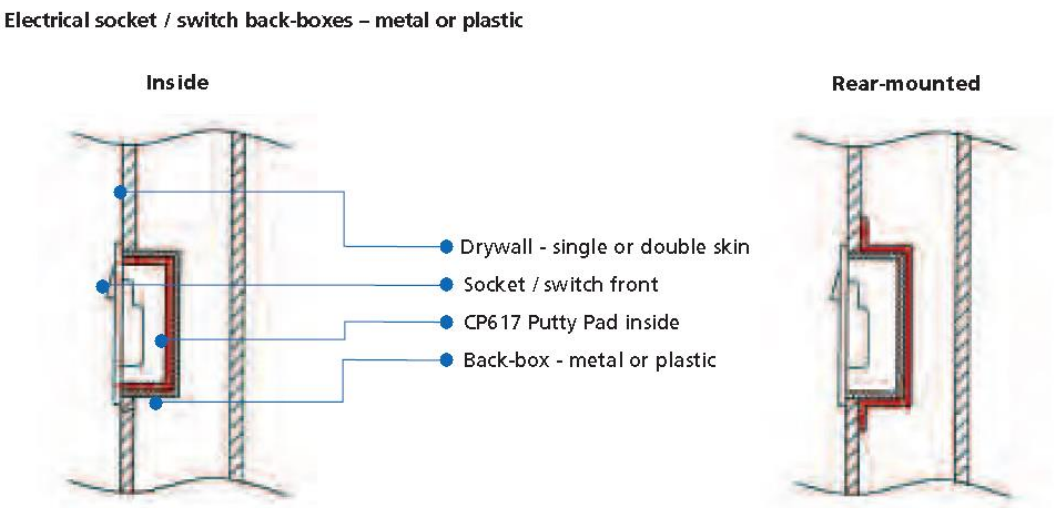
It is also recommended that electrical sockets for kitchen areas onto party walls between apartments are protected as shown below:



Putty Pads

A “Putty Pad” type product is also acceptable as an alternative way of protecting sockets.

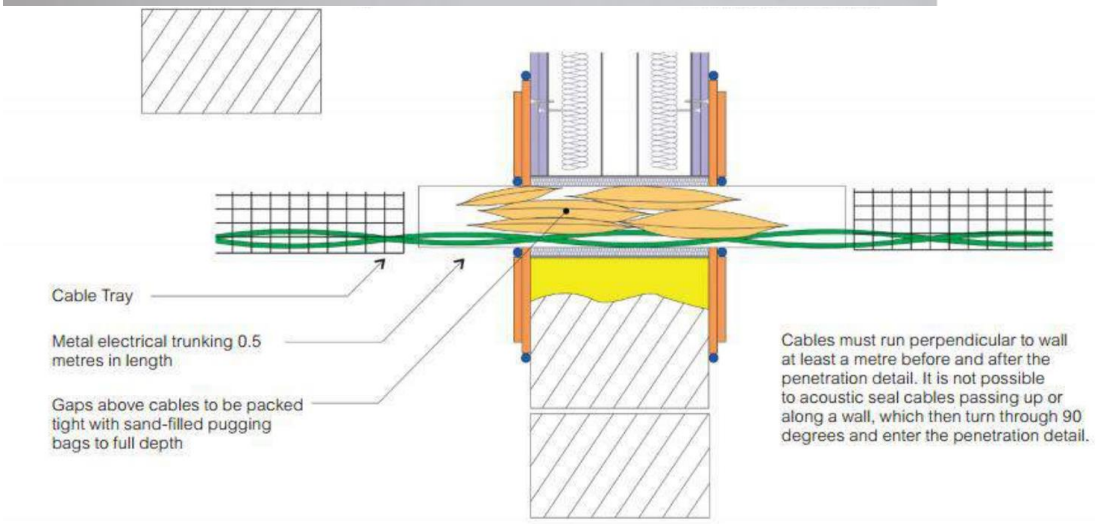
Pads may be fitted to the inside or rear of sockets, see example diagram below:



If sockets have to be fitted back-to-back due to no other design alternative, then the protection of the sockets becomes even more paramount.

Cable trays





3.9 Steelwork and Resilient Connections (where applicable)

Steel is a very efficient material for conducting sound energy and therefore the golden rule is that there must be **no** rigid fixings made to **any** steelwork for any metal stud systems, wall linings or ceilings.

If connections must be made then all connections for plasterboard and metal stud systems must be via resilient fixings, see example products below:

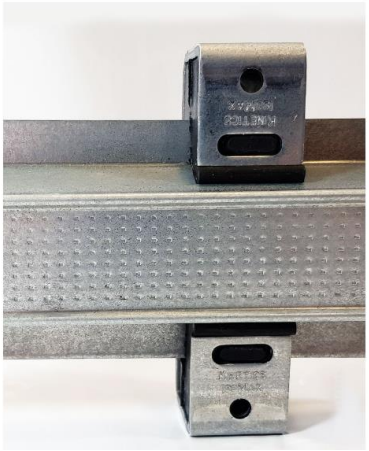


Metal products

Bookmark this page Share

Gypframe RB1 Resilient Bar

Cut noise transfer through walls and ceilings.



IsoMax Acoustic Isolation Clips

The IsoMax Acoustic Isolation Clips System is a space saving acoustic solution designed to completely isolate walls and ceilings.

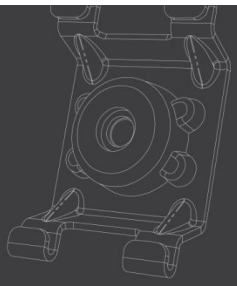
- Offers a robust and higher performing alternative to traditional wall and ceiling isolation methods
- Out-performs standard resilient bar construction by up to 7dB
- Withstands greater loads than standard systems to provide peace of mind for developers and dwellers
- Reduces the risk of error at installation stage as screws cannot be inadvertently attached to the stud or joist through the resilient area
- wall constructions with minimal encroachment into living space
- For situations where fire protection is a consideration fire rated wall and ceiling systems are also available
- Offers one of the most cost effective methods available to achieve superior noise control in walls and ceilings while using standard materials

+ Applications

Sound Control Clip Sound Isolation Clip Engineered Acoustic Product
Sound Transmission Control

GenieClip® RST
SOUND CONTROL CLIP

BROCHURE PRODUCT SPEC GUIDE



OVERVIEW DOWNLOADS UL ASSEMBLY

GenieClip® RST

GenieClip RST was designed as an alternative to resilient channel (RC) for isolating drywall from both ceiling and wall structures. It features a one piece molded rubber and galvanized steel body with a single hole for fastening.

This sound control clip has been designed to:

- work straight out of the box – no on-site adjustment required
- require only one screw to attach to either wood or metal wall studs or floor joists
- eliminate the risk of short circuiting which reduces sound insulation performance
- reduce assembly weight and contributes to LEED certified buildings



4.0 Reverberation Times (RTs) in common areas, ADE Requirement E3.

Approved Document E (ADE) 2003 has introduced the following:

Reverberation in the common internal parts of buildings containing flats or rooms for residential purposes

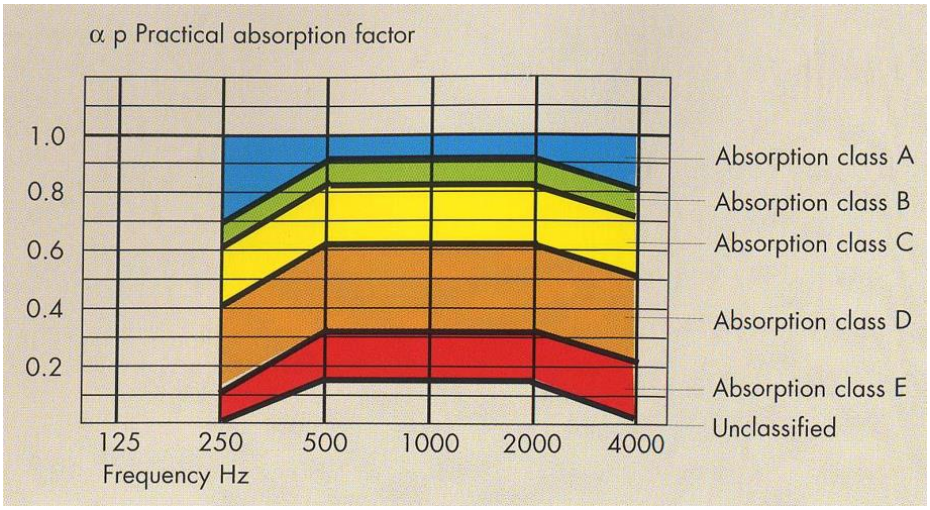
E3. The common internal parts of buildings which contain flats or rooms for residential purposes shall be designed and constructed in such a way as to prevent more reverberation around the common parts than is reasonable.

Requirement E3 only applies to corridors, stairwells, hallways and entrance halls which give access to the flat or room for residential purposes.

The control of reverberation within a space is governed by the following factors, namely the volume of the space concerned, the amount of absorption present in square metres and the efficiency of the absorbing material used. Acoustic absorbers are rated in efficiency from Class "A" which is the most efficient down to Class "D" which is the least efficient. The amount of surface area of absorption required is governed by the absorption class chosen i.e. a lesser area would be required for a Class "A" absorber than would be needed for a Class "D" absorber.

4.1 Acoustic Absorber Classes

Classes for acoustic absorption are rated as shown below:



Two methods are detailed as solutions to the ADE requirements, namely Method A and Method B.

4.2 Reverberation Requirements for this Development

For this development the proposed ceiling finish is unknown at this stage, however, it is strongly recommended that Method A is used.

This will involve the installation of a Class "C" ceiling tile installed to all common areas, that apartments open onto directly.

However, if the plasterboard ceilings are preffered by the client, then it is recommended that absorbent wall panels are installed, see examples below:



Or decorative:



If this approach is taken, the exact surface area of absorption required will depend upon the chosen product performance.

5.0 Conclusions

This report summarises all acoustic design elements of this development and we have provided recommendations to ensure that the requirements of ADE are met.

However, particular attention is drawn to the Build Quality Criteria section of the report, since the final performance of any acoustic element is governed purely by the quality of its construction.

So, providing that our recommendations are adopted, and all build criteria is correctly followed, the current design for this development would be expected to meet the requirements of Building Regulations ADE.