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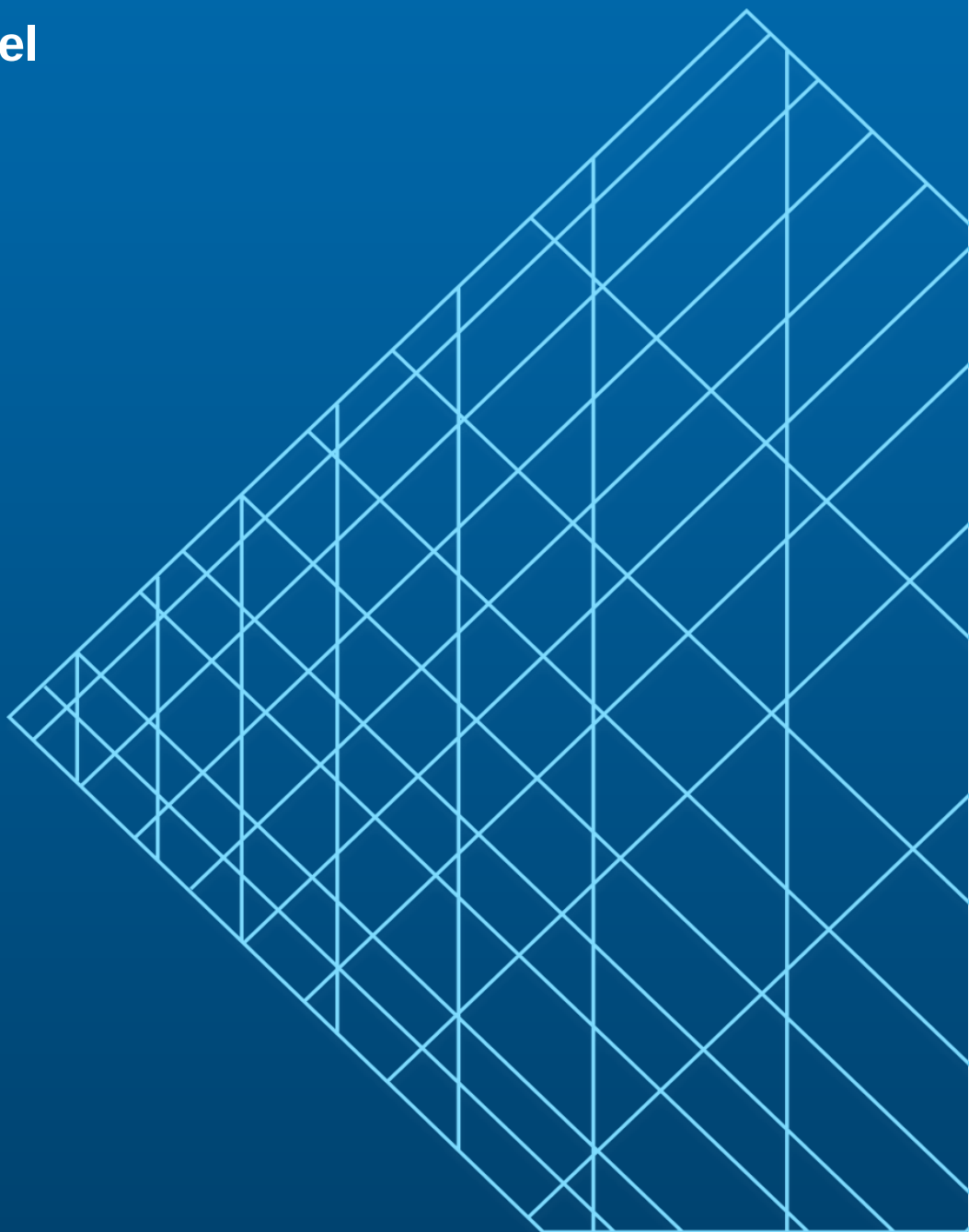
Building Regulations ADE2003 Acoustic Design Review

Porthcawl Hotel
Porthcawl

4956/ADR1_Rev2



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Building Regulations ADE2003 Acoustic Design Review

Project:	**Porthcawl Hotel**
Site Address:	John Street Porthcawl CF36 3BE
HA Reference:	4956/ADR1_Rev2
Date:	14/11/2024
Client:	Easy Living ltd c/o Prime Architecture Ltd Unit 4, 3 Llandeilo Road Cross Hands Llanelli SA14 6NA
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TABLE OF CONTENTS

1. INTRODUCTION

We understand that Porthcawl Hotel, John Street, Porthcawl, CF36 3BE is to be converted into 22no flats with ground floor A3 units.

The following items are covered in this Building Regulations Approved Document Part E (ADE2003) acoustic design review report;

- Separating walls: twin metal stud and existing masonry
- Separating wall head and base details
- Separating wall/external wall junction details
- Separating wall/structural steel junction details
- Internal walls: metal frame
- Separating floors: timber
- Separating floor/wall junction details
- Corridor doors (These are flat entrance doors)
- Access Hatches
- Lift shafts
- Down-lighters (recessed lighting)
- Reverberation requirements in common areas

Architectural drawings used in this review are listed in Appendix C.

Acoustic terminology used in the report are explained in Appendix D.

2. CRITERIA

The scheme is to achieve performance requirements of Building Regulations Approved Document Part E (ADE2003) for dwelling-houses and flats formed by material change of use.

We understand no performance requirements over and above Building Regulations ADE2003 are being targeted – please confirm.

ADE2003 performance requirements are included in Appendix A.

Floor plans marked up with acoustic criteria are included in Appendix B.

3. SEPARATING CONSTRUCTIONS

Figure B.1 and Figure B.2 of Appendix B show separating walls in **RED** that are required to meet the Building Regulations ADE2003 separating wall airborne performance requirement of 43dB $D_{nT,w}+C_{tr}$.

Separating floors are required to meet 43dB $D_{nT,w}+C_{tr}$ airborne and 64dB $L'_{nT,w}$ impact sound insulation performance requirements.

Note: The airborne sound insulation performance requirement term ($D_{nT,w}+C_{tr}$) is a measure of the sound reduction and therefore a higher value indicates better performance, whereas the impact sound insulation performance requirement term ($L'_{nT,w}$) is a measure of the sound transmission and therefore a lower value indicates better performance.

3.1 Separating Walls (Existing Masonry)

Existing masonry walls separating flats in the existing building are indicated to be a minimum 380mm thick solid masonry – please confirm.

These should achieve a minimum mass per unit area of 415kg/m^2 and are therefore sufficient to meet Part E airborne performance requirements.

Ensure any holes (including chimney breasts) are made blocked up with full depth dense blockwork (1850-2300kg/m^3) and mortar.

3.2 Separating Walls (New Twin Steel – RSD: E-WS-1)

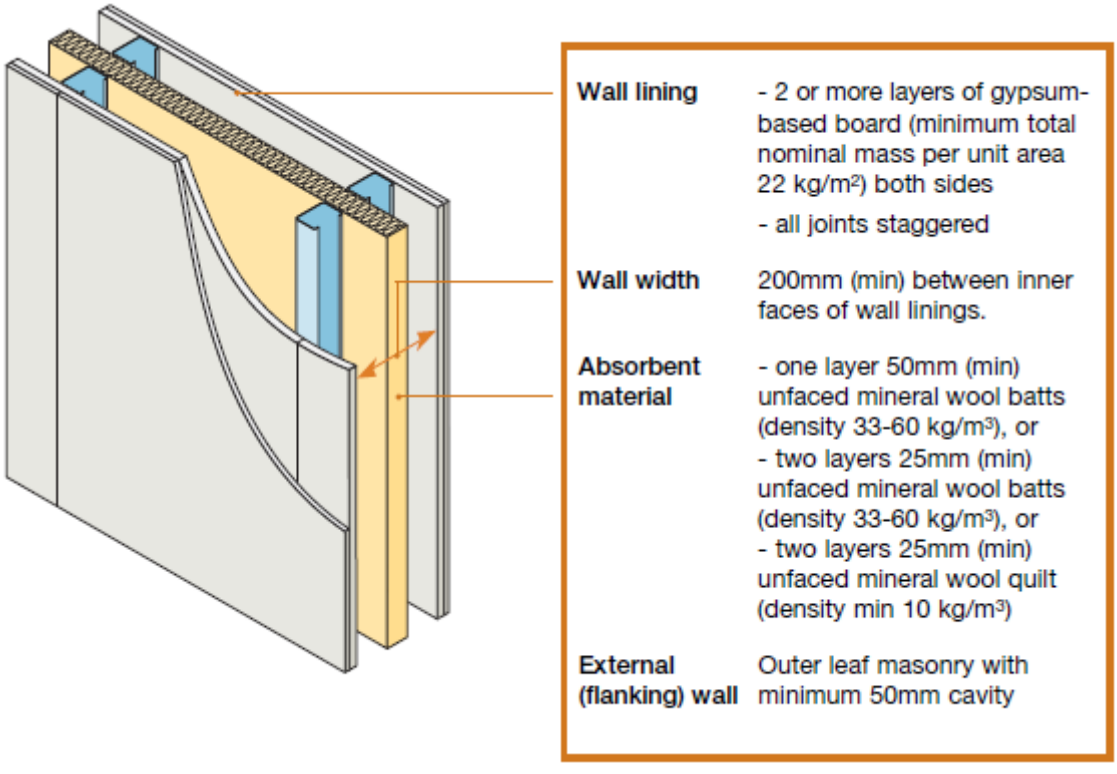
Proposed separating wall construction is indicated to be in line with Robust Standard Details E-WS-1, which utilises a twin metal frame.

- 3mm skim finish on 2 x 12.5mm plasterboard
- 50mm metal studs with insulation (to be mineral wool insulation)
- 9mm OSB sheathing board
- 50mm clear cavity
- 9mm OSB sheathing board
- 50mm metal studs with insulation (to be mineral wool insulation)
- 3mm skim finish on 2 x 12.5mm plasterboard

The proposed inclusion of sheathing boards to both frames represents a marginal risk however. For Robust Details E-WS-5, it advises that where required for structural or security reasons, it is permissible to apply sheathing to one frame of the separating wall. We would therefore advise removing the sheathing board to one frame if possible – please advise.

3.2.1 Construction

Figure 3.1 - Proposed Separating Wall Construction (RSD E-WS-1)



Ensure all minimum density requirements are met on all details. Plasterboards to achieve min. 22kg/m^2 combined mass per unit area each side of twin frame.

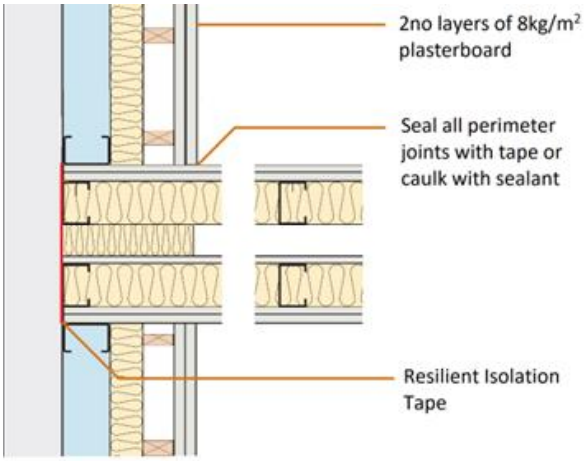
DO.

- Keep wall linings at least 200mm apart
- Ensure batts cover the whole wall area and are fitted tightly
- Make sure there is no connection between the two leaves
- Ensure all cavity stops/closers are flexible
- Stagger joints in wall linings to avoid air paths
- Seal all joints in outer layer with tape or caulk with sealant

3.2.2 Junction Details

- **External Wall Junction**

Figure 3.2 - Junction Detail with External Wall

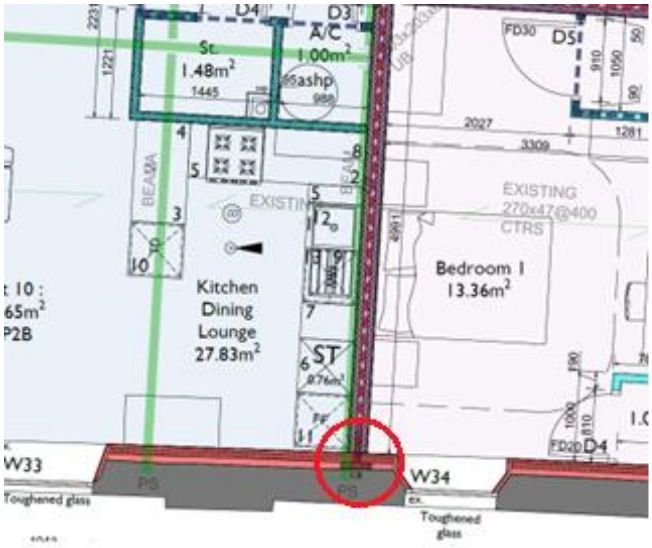


The separating wall must break the inner leaf (or any linings applied to it), as shown above. Current architectural drawings don't show separating walls breaking the external wall -

Figure 3.3 – Intersection of Party Wall & External Wall for Comment

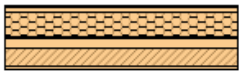
Furthermore, any liner systems on external walls should be broken by the separating wall/separating floor.

Figure 3.4 – Intersection of Party Wall & External Wall for Comment

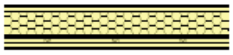


External wall types 3 & 4 (timber frame) are shown to only have 1no layer of plasterboard on the inner layer.

Figure 3.5 – Details for Review



EXTERNAL WALL TYPE 3 -
12.5mm Plasterboard
25mm mainteinance void
140mm timber frame inner skin
filled with insulation
12.5mm cement board
50mm clear cavity
100mm blockwork outer skin
20mm render
U-value=0.21W/m2K TBC

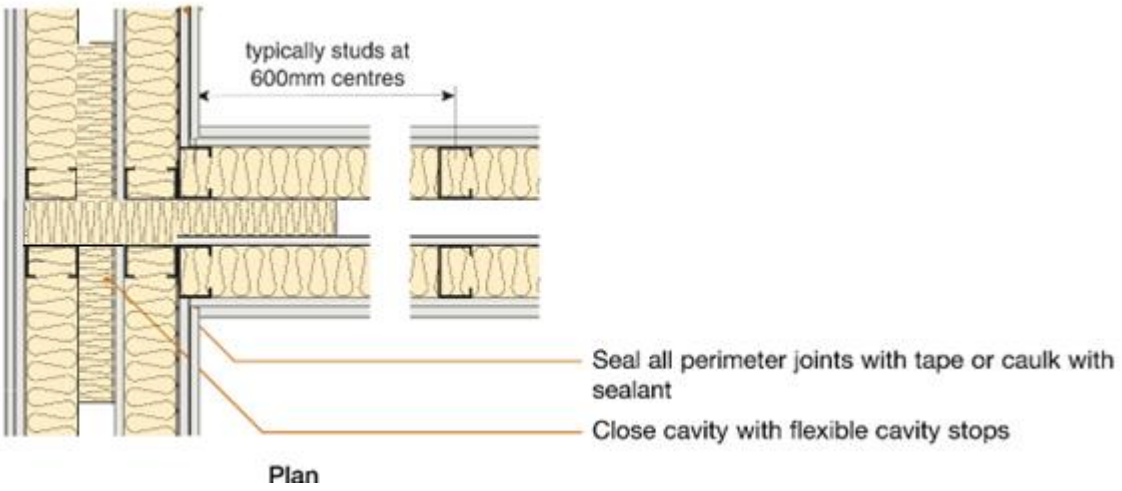


EXTERNAL WALL TYPE 4 -
12.5mm Plasterboard
25mm mainteinance void
140mm timber frame inner skin
filled with insulation
9mm OSB board
12.5mm cement board
25mm counter battens
25mm s/w battens
12.5mm render board
U-value=0.21W/m2K TBC

This should be increased to 2no layers of plasterboard min 8kg/m² per layer. This is indicated on some drawings but not all.

- **Corridor Wall Junction**

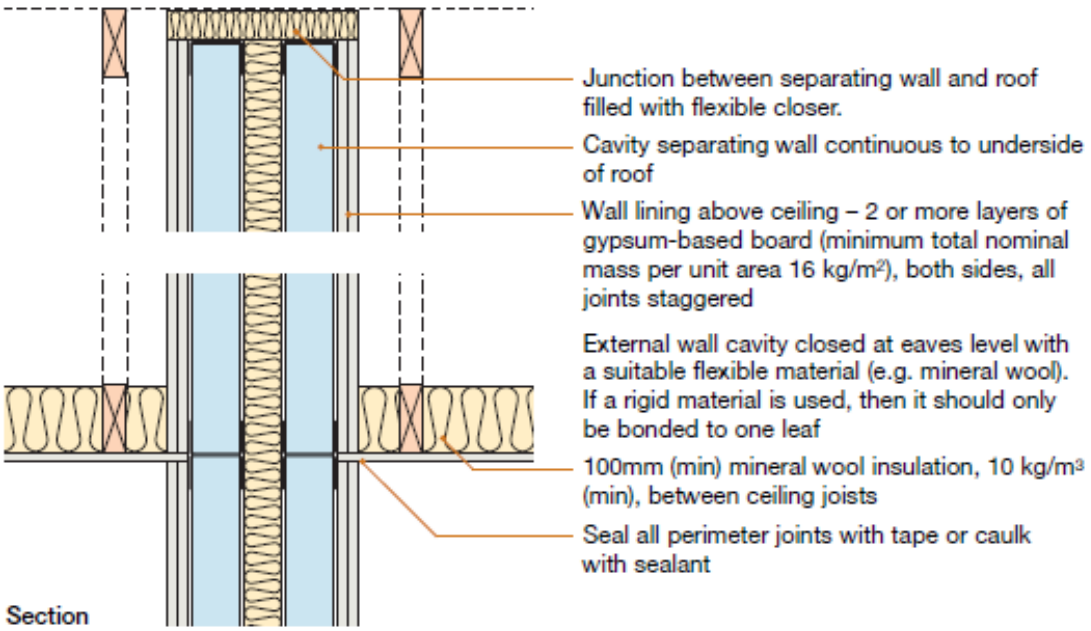
Figure 3.6 - Junction Detail with Corridor Wall (New Twin Metal Frame)



- **Roof Junction**

Walls should be built full height to the underside of the roof as shown below:

Figure 3.7 - Separating Wall with Pitched Roof Junction



For flat roof sections and room in roof (dormer), include 2no layers of 8kg/m² gypsum-based board to the ceiling.

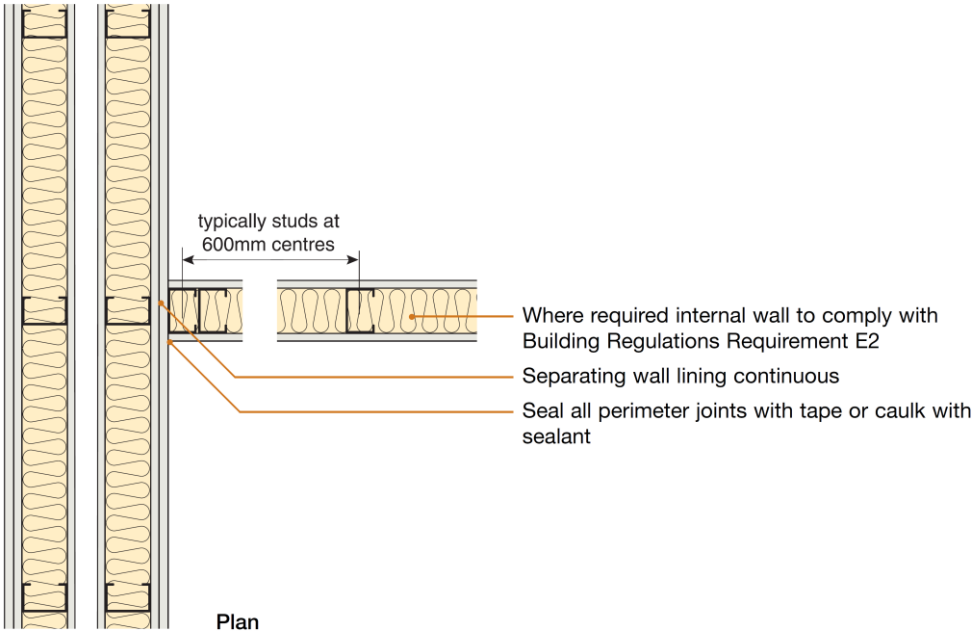
- **Separating Wall / Separating Floor Junction**

See Figure 3.16 for this detail.

- **Internal Wall / Separating Wall Junction**

Internal walls can abut the separating wall with all perimeter joints taped or caulked with sealant.

Figure 3.8 – Internal Wall / Separating Wall Junction



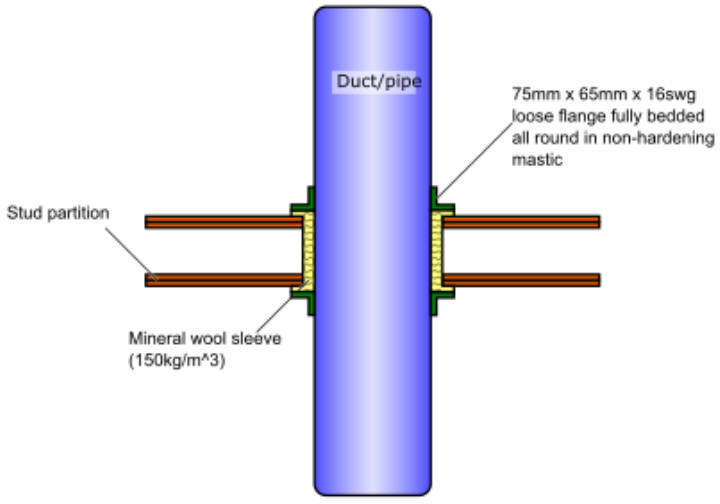
3.2.3 Services Penetrations (Corridor Walls)

Do not take services through critical separating walls. Services (electrical and/or small pipes/ductwork) shall run down communal corridors with branches into flats taken over the main access door above the suspended ceiling line.

Services shall not pass through critical separating walls.

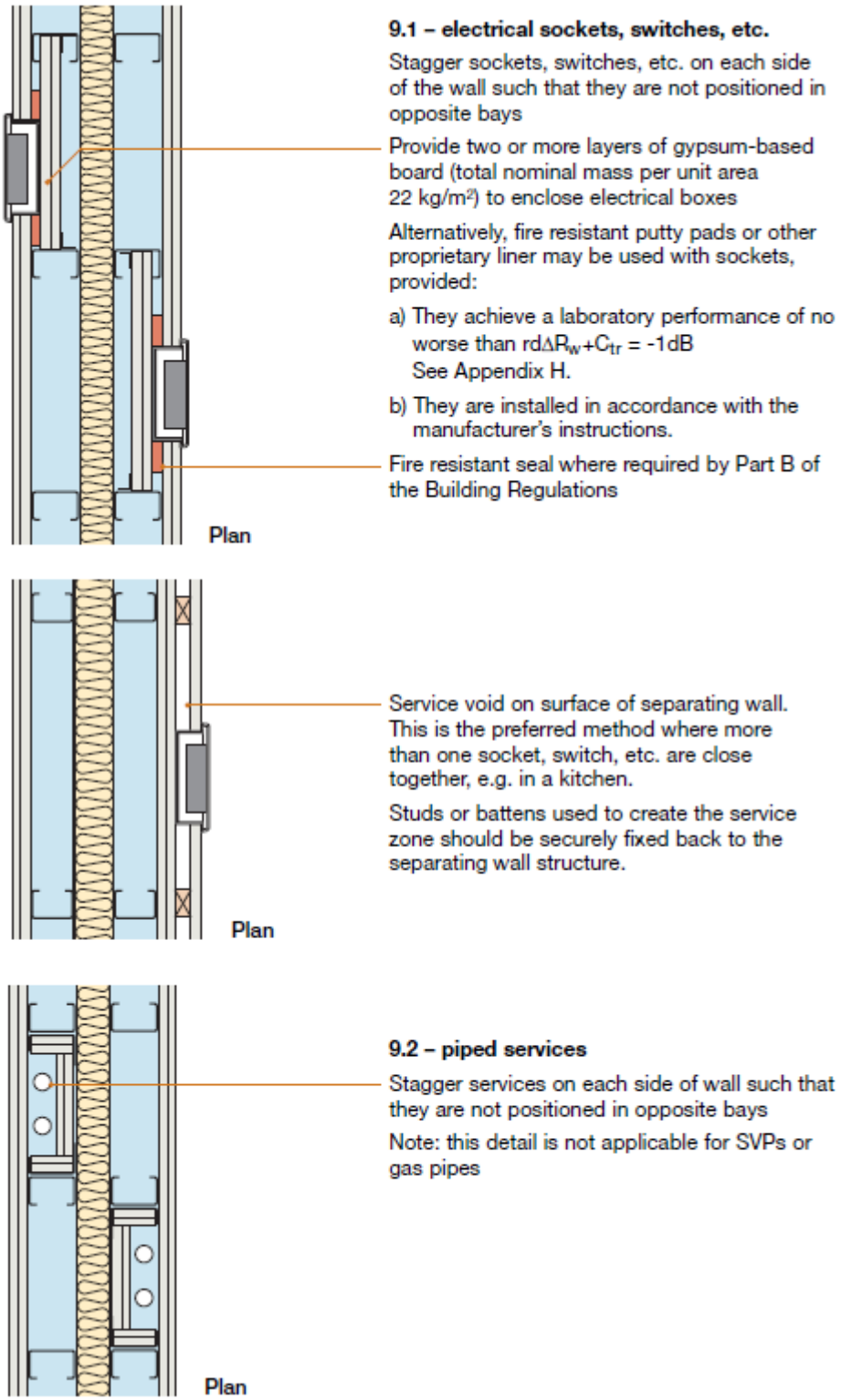
A suitable penetration detail for corridor walls is shown below;

Figure 3.9 - Corridor Wall Penetration Detail



Electrical switches and sockets may be incorporated into the separating wall see below;

Figure 3.10 – Services and Sockets Details



Socket/switch boxes shall be staggered each side of the party wall; do not place sockets back-to-back.

For services penetration through separating floors, refer to Section 3.3.4.

3.3 Separating Floor (New Timber – RSD: E-FT-6)

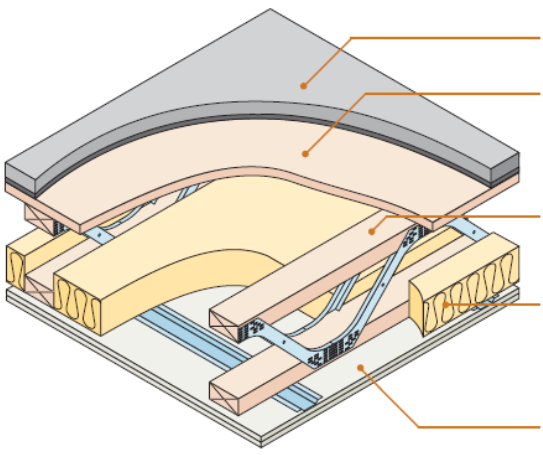
A separating floor construction in line with Robust Detail E-FT-6 is proposed. It is understood that existing timber floors are to now be removed and therefore all timber separating floor sections are to be in line with the below – please confirm.

Note: The below construction (with double layer plasterboard and resilient bar ceiling should also be incorporated to undercroft car park area to control noise from car park movements to flats above.

3.3.1 Construction

Cellecta Screedboard 28 on 18mm thick wood-based board (600kg/m^3), 253mm metal web joists, 100mm mineral wool insulation (10 – 36kg/m^3) between joists, Cellecta HP30 resilient bars with 2no layers 15mm gypsum-based board.

Figure 3.11 – Separating Floor Construction



Floating floor	*Cellecta*® ScreedBoard® 28
Floor decking	18mm thick (min) wood based board, density min 600 kg/m^3
Joists	253mm (min) metal web joists (see joist type below)
Absorbent material	100mm (min) mineral wool quilt insulation (10–36 kg/m^3) between joists
Ceiling	See section 9 for suitable ceiling treatment

Do:

- Ensure correct joist type is used (see below)
    1. MiTek Posi-Joist
    2. Prestoplan PresWeb
    3. WOLF easi-joist
    4. ITW Gang-Nail Ecojoist
    5. ITW Alpine SpaceJoist
- Lay quilt between joists ensuring no gaps remain
- Apply Cellecta SB adhesive to all Screedboard 28 decking joints
- Install Cellecta YELOfon FS50 flanking angle round the perimeter of the Screedboard 28 to isolate floor from walls and skirtings
- Ensure resilient bars are fixed at right angles to joists
- Stagger joints in ceiling layers

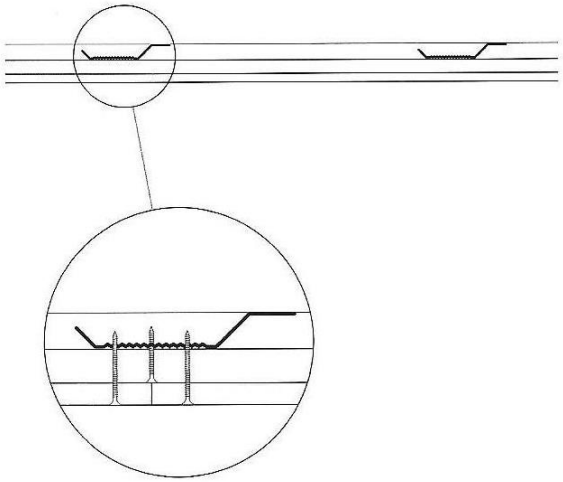
3.3.2 Ceiling Treatment

Include 2no layers of gypsum-based board (min. 12.5kg/^{m2} per layer). All ceiling joints must be sealed with tape or caulked with sealant.

Ensure resilient bars are fixed at right angles. Bars must achieve a minimum laboratory performance of rdΔR_w+C_{tr} = 17dB and rdΔL_w = 16dB.

Ceiling board fixings must not bridge resilient bars (i.e. do not screw through resilient bar into the joist). Refer to detail below:

Figure 3.12 – Resilient Bar Detail



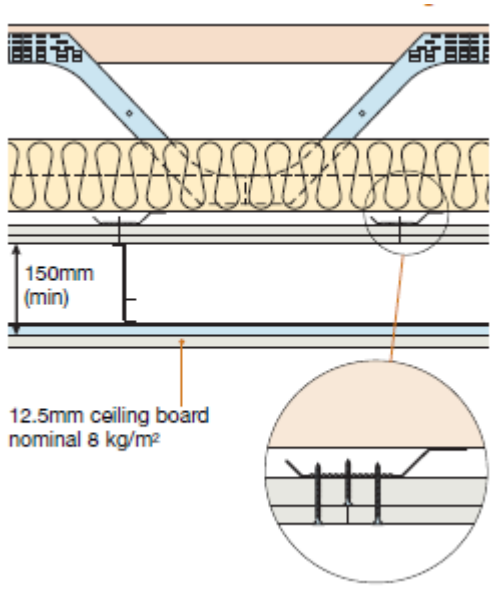
Ensure the correct length screws are used. For two layers of 15mm plasterboard, 25mm screws should be used for the first layer and 42mm screws for the second layer.

Care should be taken to ensure screws do not bridge through the resilient bar and into the timber joists. As a precaution, we would advise a robust approach would be to avoid fixing boards to resilient bars on the joist zone.

The maximum load on resilient bars should not exceed that specified in the manufacturer's instructions.

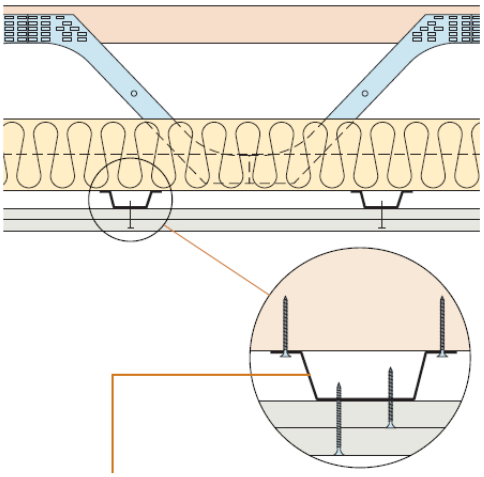
If using standard 16mm(min) resilient bars, then a secondary ceiling as shown below must be included:

Figure 3.13 – Resilient Bar Ceiling with Secondary Ceiling



If the secondary ceiling is not to be included, then Cellecta HP30 30mm deep resilient bars must be used, as shown below:

Figure 3.14 – Ceiling Treatment with no Secondary Ceiling

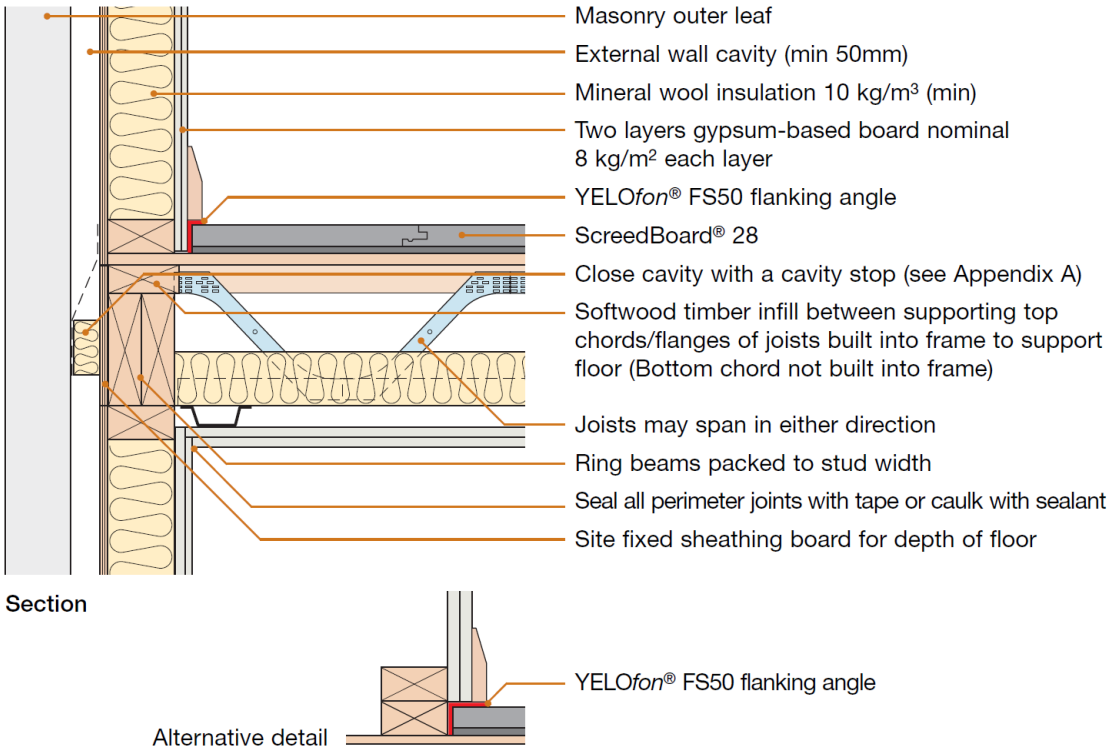


3.3.3 Junction Details

- **External Wall Junction**

The inner leaf of the external wall shall be broken at the separating wall line and include a flexible cavity stop (unless cavity fully filled) as shown below:

Figure 3.15 – Separating Floor / External Wall Junction



Liner systems shall also be broken at the ceiling line.

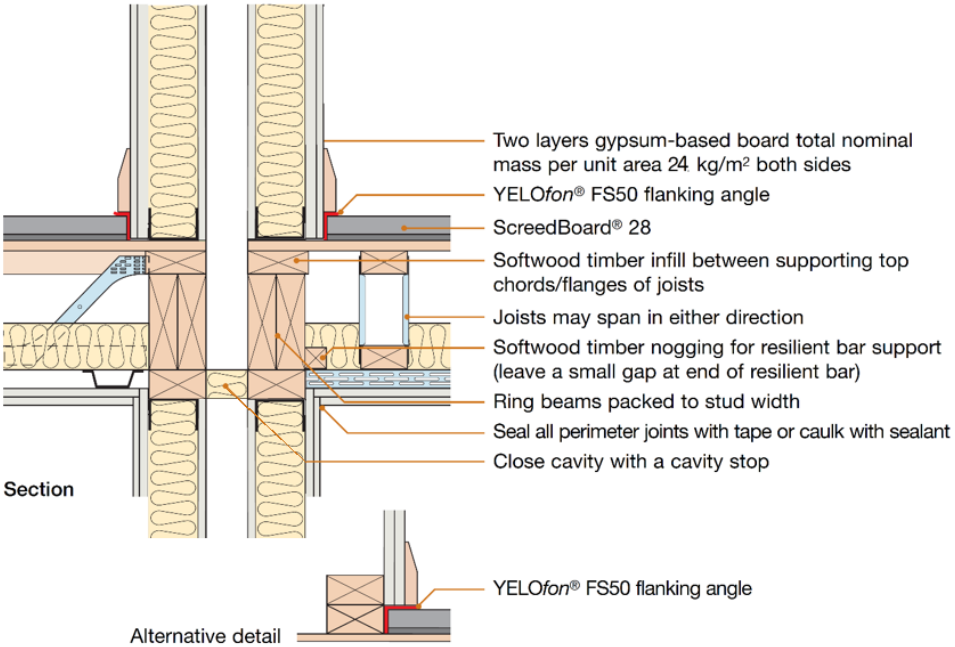
External wall finishes / liners shall be double boarded refer to Figure 3.5 where the issue lies.

Include 2no layers of 8kg/m² plasterboard to inner leaf of new timber frame external wall.

- **Separating Wall Junction**

The timber joists must not be continuous across the separating wall line as shown below. Ensure that ring beams are packed to stud width – full depth blocking.

Figure 3.16 – Separating Wall / Separating Floor Junction (Twin Metal Frame / Timber Floor)

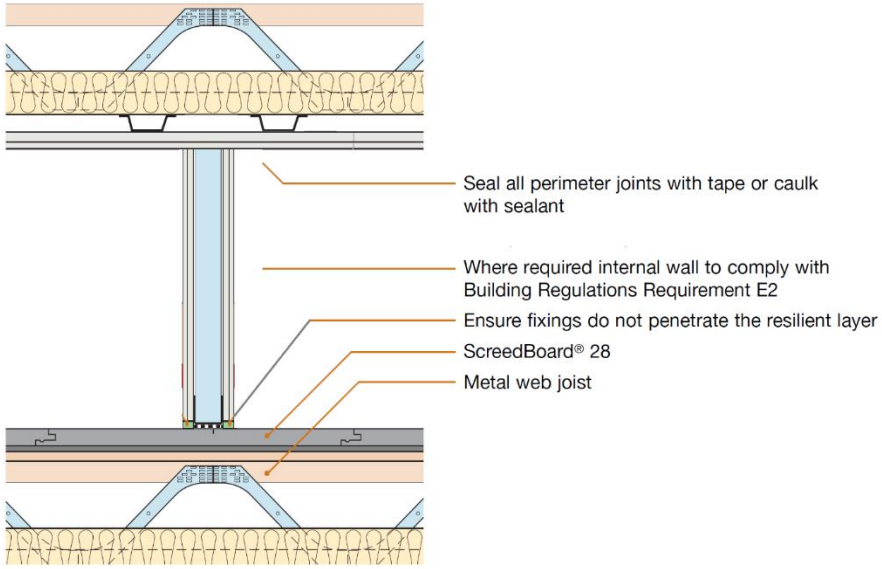


- **Internal Wall Junction**

Internal walls can be built off the Cellecta Screedboard up to the underside of the ceiling, providing care is taken to ensure the resilient layer is not bridged by fixings.

Internal wall is to abut the plasterboard ceiling.

Figure 3.17 – Internal Wall Head/Base Detail

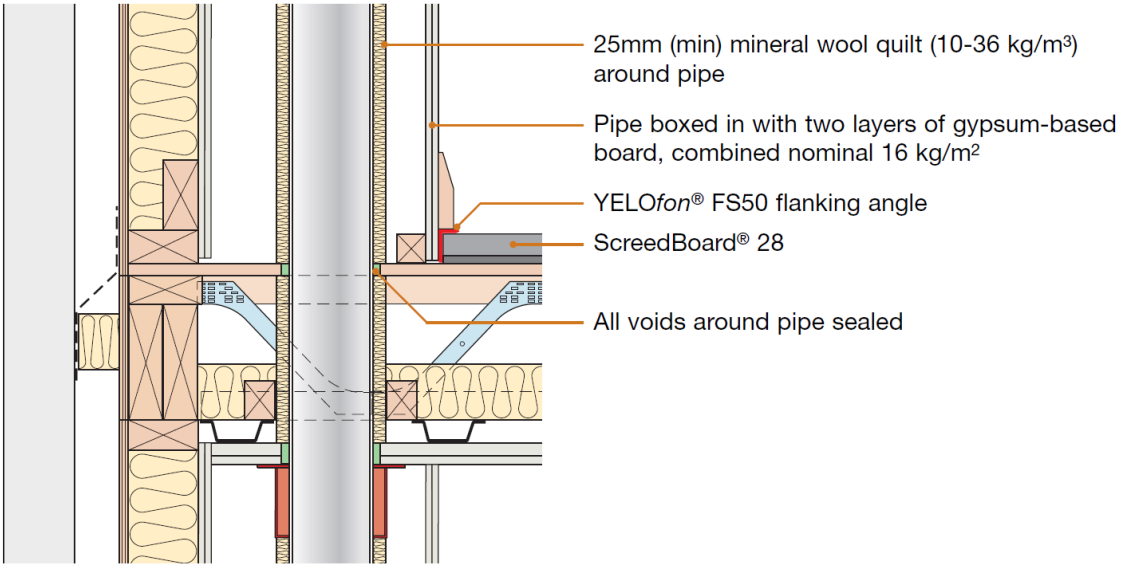


3.3.4 Services Penetrations (Separating Floors)

Pipes/ducts that penetrate a separating floor should be enclosed for their full height in each flat. Enclosures should consist of 2no layers of 12.5mm plasterboard (min. combined mass per unit area 16kg/m^2), with either the enclosure lined, or the pipe/duct lagged with minimum of 25mm mineral wool (10-36kg/m^3).

A gap of 5mm between the enclosure and floating layer should be maintained and sealed with flexible sealant. Any fire stopping should be flexible and also prevent rigid contact between the pipe and floor.

Figure 3.18 – Services Pipes Through Separating Floor



Double layer plasterboards should have staggered junctions and board joints should be taped and caulked.

3.3.5 Recessed Light Fittings

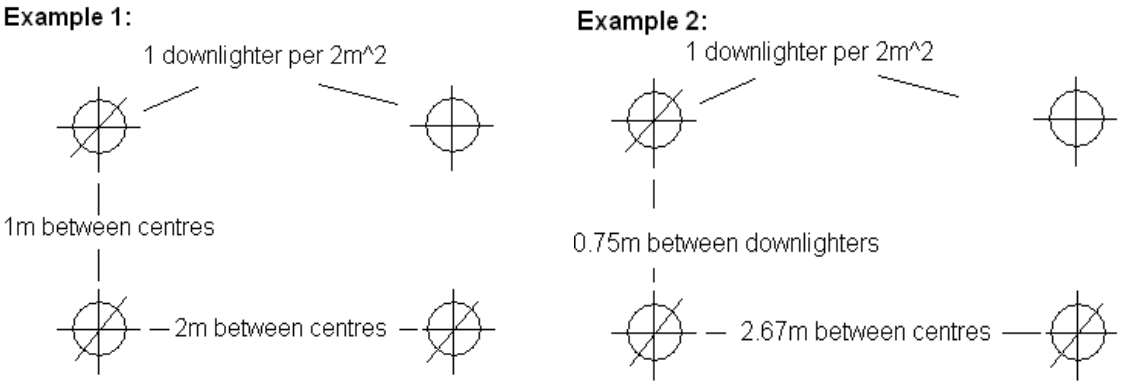
Downlighters or recessed lighting may be installed in the ceiling:

- in accordance with the manufacturer's instructions
- at no more than one light per $2m^2$ of ceiling area in each room unless the use of a greater density of light fittings is supported by testing undertaken in accordance with Appendix F of Robust Standard Details
- at centres not less than 0.75m
- into openings not exceeding 100mm diameter or 100x100mm

For example, a ceiling with dimensions 2.25m by 5.34m can have up to 6no. downlighters.

The following sketches show example down-lighter positioning and are provided for information only.

Figure 3.19 - Downlighter Positioning Examples



Note: Particular attention should also be paid to Building Regulations Part B – Fire Safety".

Only downlighters which have been satisfactorily assessed in accordance with the procedure described in Appendix F - "*Determination of the acoustic performance of downlighters and recessed lighting in timber separating floors*" of the Robust Details Handbook 2019 (or later) are acceptable for use in timber separating floor constructions.

4. INTERNAL CONSTRUCTIONS

4.1 Internal Walls (Within Flats)

Internal walls separating rooms within an apartment are required to achieve R_w 40dB (except those with a door in or where they are existing walls). These walls are marked up in **BLUE** on floor plans in Figure B.1 and Figure B.2 of Appendix B.

There is no ADE2003 requirement for testing internal walls however it is required to provide evidence to show they meet the R_w 40dB lab' requirement (except for walls with doors in or walls separating en-suite from associated bedroom – see Appendix A).

4.1.1 Construction

2no new constructions are proposed on the scheme as follows;

- 12.5mm plasterboard either side of 70mm timber stud filled with insulation
- 12.5mm plasterboard either side of 70mm timber stud

For walls marked up in **BLUE** on floor plans in Figure B.1 and Figure B.2 of Appendix B, a stud wall with plasterboard min.10kg/m^2 should be used with mineral wool insulation. Plasterboard supplier should confirm their system achieves R_w 40dB.

4.1.2 Junction Details

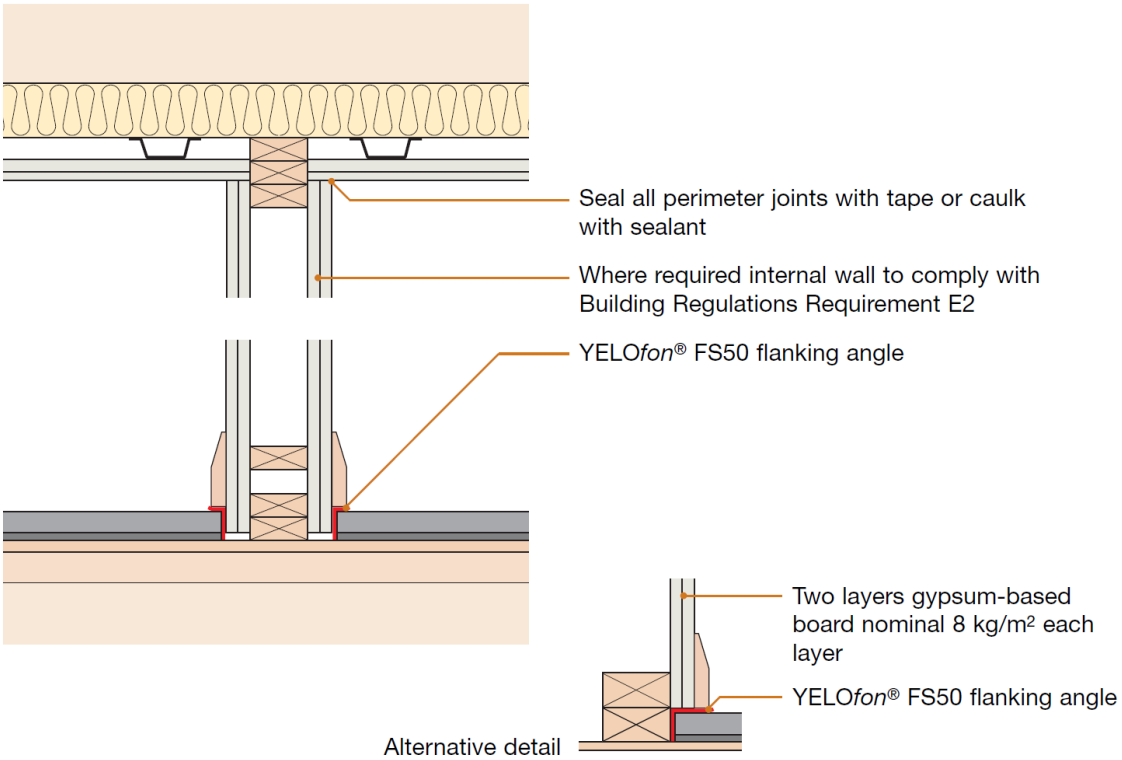
- **Internal Walls with Party Walls**

Refer to Figure 3.8.

- **Internal Walls with Separating Floor**

Refer to Figure 3.17.

Figure 4.1 - Internal Wall / Floor Junction Detail (Loadbearing)



5. SPRINKLER SYSTEMS

In our experience, 1no sprinkler head per room is unlikely to have a significant impact on the sound insulation performance of the separating floors.

Any hole shall be cut tight and the sprinkler include a backing plate/cover in line with the supplier's recommendations.

6. STRUCTURAL STEELS

Structural steels are in place throughout the scheme running horizontal in floor/ceiling lines and in the vertical direction. Steels within ceiling lines should be encased in 1no layer of 15mm plasterboard (min. mass per unit area 11kg/m^2) with the web of the steel filled with mineral wool (min. density 28kg/m^3)

Any steels exposed below ceilings should be encased in 2no layers of 15mm plasterboard (min. combined mass per unit area 22kg/m_2) on an independent frame, with the web of the steel filled with mineral wool (min. density 28kg/m_3).

6.1 General

Supporting steels located in ceiling voids should be encased in 1no layer of 15mm plasterboard (min. mass per unit area 11kg/m^2) with the web of the steel filled with mineral wool (min. density 28kg/m^3).

Any steels exposed below ceilings should be encased in 2no layers of 15mm plasterboard (min. combined mass per unit area 22kg/m^2) on an independent frame, with the web of the steel filled with mineral wool (min. density 28kg/m^3).

7. ELECTRICITY/GAS ACCESS CUPBOARDS IN COMMUNAL HALLWAYS

Separating wall performance requirements (43dB $D_{nT,w}+C_{tr}$) apply to walls separating flats from communal hallways and/or corridors, as well as separating walls between flats.

These walls shall not be compromised by any electricity/gas meter cupboards which shall therefore be surface mounted.

8. ENTRANCE DOORS

Flat entrance door requirements are outlined in Section A.1.2 of Appendix A.

Use either R_w 29dB rated acoustic door sets or 44mm thick solid timber doors (minimum mass 25kg/m^2) fitted with compression or wipe seals at head and perimeter. Entrance doors should be fitted with a drop down or wipe type threshold seal where practical.

Sound insulation performance of a R_w 29dB rated acoustic door set should have been measured in accordance with BS EN ISO140-3; 1995 and rated in accordance with BS EN ISO717-1; 1997. Manufacturer/supplier should provide laboratory test data to confirm the suitability of their doors.

A similar door specification should apply to any riser access doors within rooms for residential purposes with acoustic seals to head, threshold and jambs.

9. REFUSE CHUTES

We understand that there are no refuse chutes on this project.

Please note that Building Regulations requirements for refuse chutes are very onerous.

10. LIFTS

From discussions on site a lift is not indicated at this stage however an area has been allocated for the inclusion if necessary at a later stage.

Any future proposed lift shaft construction should be dense 215mm blockwork (1850-2300kg/m^3).

10.1 Guidance

BS 8233:2014 quotes the following criteria for noise from lifts in living accommodation;

Table 10.1 – Noise Levels from Lifts in Living Accommodation

Room	Maximum Noise Level (dB $L_{Amax,F}$)
Bedroom	25
Living room	30
Other areas	35

Further advice is included in CIBSE Guide B4;

"Door noise, when measured at 1.5 m from the centre of the floor and 1.0 m from the door should not exceed 65 dBA. Noise levels in the car, when measured as above, should not exceed 55 dBA for lift speeds of 0.5–2.0 m/s and should not exceed 60 dBA for lift speeds of 2.0–7.0 m/s.

Lift noise, when measured at 1.5 m from the floor and 1.0 m from the door should generally not exceed 55 dBA at any time during the lift cycle. Where lifts open directly into office spaces (i.e. where there is no lift lobby), this limit should be reduced to 50 dBA."
"Although voice annunciators are useful in situations where the lifts are regularly used by the general public or by blind or partially sighted people, they can also become a source of irritation to lift users. This can be avoided in part by enabling the volume to be adjusted between 35 and 55 dBA."

The chosen lift supplier should confirm the above BS 8233:2014 and CIBSE limits are met.

11. REVERBERATION ASSESSMENT OF COMMON INTERNAL AREAS

11.1 Requirements of Building Regulations ADE2003

Requirement E3 of ADE2003 states *"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 applies to areas giving access to flats or rooms for residential purposes. These areas are defined as entrance halls, corridors, hallways and stairwells. Two methods are recommended for assessment.

'Method A' can be used to assess all common internal areas while 'Method B' can be used to assess entrance halls, corridors and hallways. The following table quotes the requirements to meet for entrance halls, corridors and stairwells (ref. ADE2003 Section 7 *Reverberation in the common internal parts of buildings containing flats or rooms for residential purposes*).

Table 11.1 - Absorption Treatment Requirements

Area	Requirement to Meet
Entrance Hall (Method B)	Minimum of 0.20m^2 total absorption area per cubic metre of entrance hall volume
Corridor (Method B)	Minimum of 0.25m^2 total absorption area per cubic metre of corridor volume
Stairwell (Method A)	Option 1). Cover at least an area equal to the combined area of the stair treads, the upper surface of the intermediate landings, the upper surface of the top floor landing and the top floor ceiling area with a Class D* absorber. Option 2). Cover at least half of the area with a Class C* absorber.

** Class C & D absorber octave band absorption coefficients are given in Table 11.3.*

11.2 Details of the Proposed Surface Finishes

Our assessment is based on the following internal surface finishes;

Table 11.2 – Surface Finishes

Elements	Type of Surface Finish
Walls	Painted plasterboard
Ceilings	Painted suspended plasterboard
Floors	Carpet on Screedboard

11.3 Recommendations

11.3.1 Main Stairwell (Method A)

None of the communal stairwells lead directly to the flat entrance doors; they are all lobbied off (confirm doors are not 'held open'). No additional absorption is therefore required to control reverberation in these areas.

Note: This interpretation of the regulations should be confirmed with your Building Control Officer.

11.3.2 Corridors and Hallways

Corridors or hallways providing direct access to flats require additional absorption to control reverberation. These areas are shaded green on floor plans in Figure B.1 and Figure B.2 of Appendix B.

In order to comply with requirement E3 of ADE2003, cover 100% of the corridor ceiling area with a minimum Class C absorber. This could take the form of an absorptive lay-in grid ceiling tile or a perforated plasterboard finish.

Note: Where a plasterboard ceiling is required for sound insulation, the absorptive ceiling finish should be installed below the plasterboard ceiling.

Absorption coefficients for Class A-D absorbers are shown below;

Table 11.3 - Absorption Coefficients

Absorber Type	Absorption Coefficient at Octave Band Centre Frequency, Hz				
	250	500	1k	2k	4k
Class A absorber	0.7	0.9	0.9	0.9	0.8
Class B absorber	0.6	0.8	0.8	0.8	0.7
Class C absorber	0.4	0.6	0.6	0.6	0.5
Class D absorber	0.1	0.3	0.3	0.3	0.2

The ceiling supplier shall confirm the final ceiling selection provides the minimum quoted absorption coefficients at each octave band.

Where a ceiling area of less than 100% of the total ceiling area needs to be covered using a sound absorbent material then ensure that the absorbent treatment is distributed evenly about the whole area of the ceiling, rather than concentrating all treatment in one area.

12. GENERAL

Ensure that Hunter Acoustics and product manufacturers' recommendations are followed on site.

There should be no holes in the separating wall, separating floor/ceiling or inner leaf of the external wall.

All holes in the base structure must be made good using full density mortar full depth.

Ensure that a good standard of workmanship is maintained and only construction materials specified are used.

Separating walls should be built full height between the base floor and underside of floor/roof above. They should break the suspended ceiling line and any floating floor. A continuous resilient perimeter strip should be included between the separating walls and any isolated floating floor (party walls shall break the isolated floating floor).

Continuous flexible cavity/fire stops shall be installed at party wall and party floor lines.

NOTE: Only acoustic related aspects of the internal building fabric are assessed in this report. Proposed details shall be confirmed acceptable with your fire and structural consultants, and material manufacturer/supplier to ensure there are no conflicts with their disciplines and/or other parts of the Building Regulations.

APPENDIX A - BUILDING REGULATIONS APPROVED DOCUMENT PART E

Building Regulations Approved Document E 2003 Edition (ADE2003) states that Requirement E1 – "Protection against sound from other parts of the building and adjoining buildings" and Requirement E2 – "Protection against sound within a dwelling-house…" should be satisfied.

A.1 ADE2003 Requirement E1

A.1.1 Dwelling-houses and flats formed by material change of use

ADE2003 separating construction sound insulation performance requirements for "Dwelling-houses and flats formed by material change of use" are quoted below;

Table A.1 - ADE2003 Separating Construction Sound Insulation Performance Requirements for "Dwelling-houses and flats formed by material change of use"

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

A.1.2 ADE2003 requirements for flat entrance doors

ADE2003 flat entrance door specifications/performance requirements are quoted below;

Table A.2 - ADE2003 Flat Entrance Door Specification

To satisfy the requirements of ADE2003 meet either…	Details of requirements
Requirement 1 OR	Ensure that the corridor door has a minimum mass of 25kg/m^2 and it is fitted with good perimeter seals (including the threshold seal where practical)
Requirement 2	Ensure that the corridor door has a minimum sound insulation rating of 29dB R_w (measured in the laboratory according to BS EN ISO 140:3 1995 and rated according to BS EN ISO 717:1 1997.)

Flat entrance door should also satisfy the Requirements of Building Regulation Part B – Fire Safety. Manufacturer/supplier should provide laboratory test data to confirm the suitability of their doors.

A.2 ADE2003 Requirement E2

To satisfy Requirement E2 of ADE2003 following should be met.

'Requirement E2' states that:

"Dwelling-houses, flats and rooms for residential purposes shall be designed and constructed in such a way that –

a). internal wall between a bedroom or a room containing a water closet and other rooms; and
b). internal floors,

provide reasonable resistance to sound."

However, Requirement E2 does not apply under the following circumstances:

i) If an internal wall contains a door;
ii) If an internal wall separates an en-suite toilet from the associated bedroom;
iii) If the existing walls and floors in a building are subject to a material change of use.

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 are quoted below;

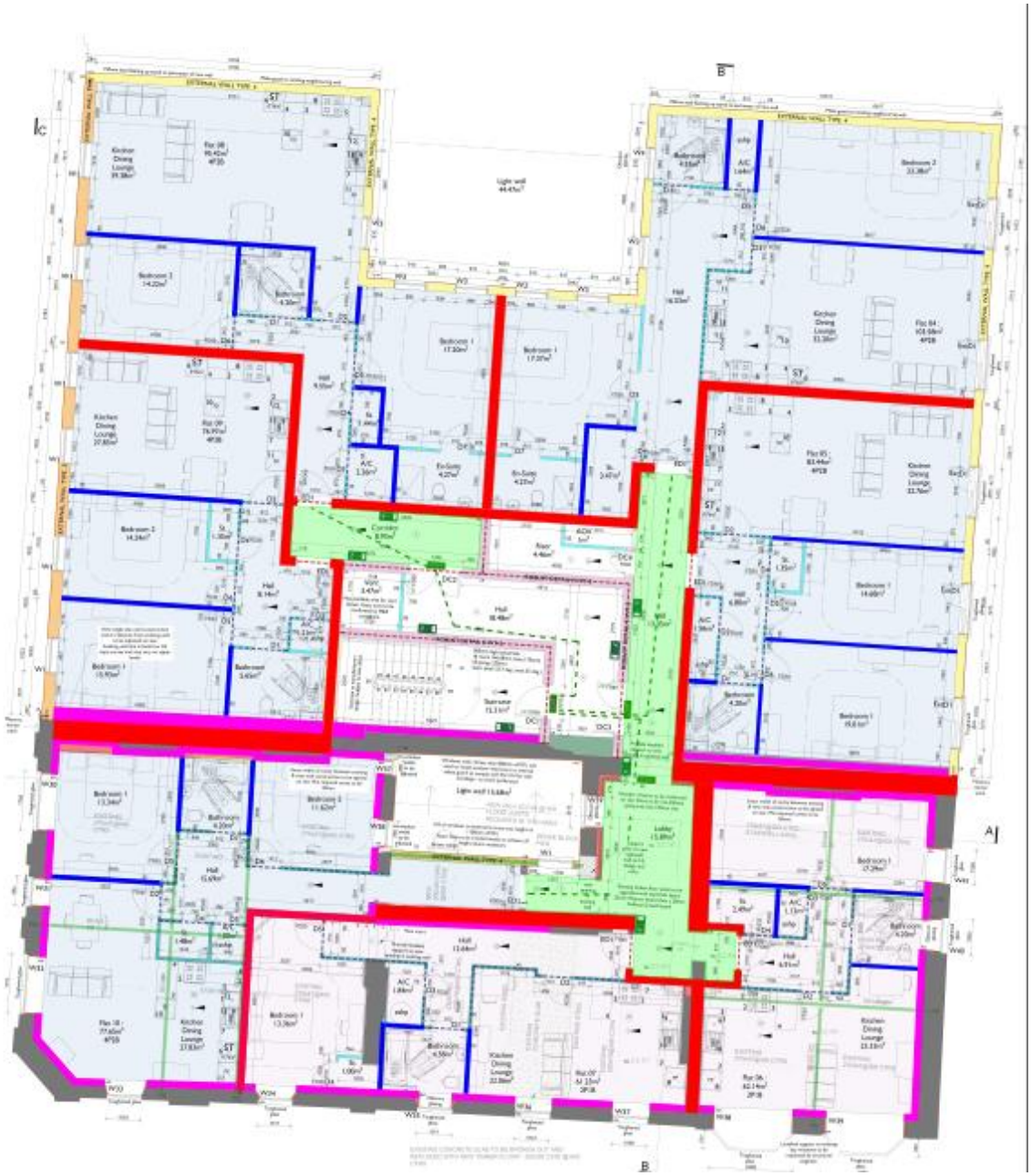
Table A.3 - ADE20003 Wall/Floor Performance Requirements for "new internal walls and floors" within dwelling-houses and flats, whether purpose built or formed by material change of use

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

APPENDIX B - DIAGRAMS, GRAPHS AND TABLES

Figure B.1 – First Floor Plan with Acoustic Criteria Mark-up

Figure B.2 – Second and Third Floor Plan with Acoustic Criteria Mark-up



Separating Wall $D_{nT,w}+C_{tr}$ 43dB

Internal Wall R_w 40dB

Thermal Wall Liner Shown

Absorptive Ceiling Required

APPENDIX C - DRAWING LISTS

The following Prime Architecture Limited drawings and documents have been used in our assessment:

Table C.1 - Drawing List

PRIME ARCHITECTURE

Unit 4, 3 Llandeilo Road, Cross Hands, Llanelli, SA14 6NA

Tel: 01269 842 575
E: info@prime-arch.co.uk
W: www.prime-arch.co.uk

DRAWING ISSUE REGISTER

PROJECT:
Porthcawl Hotel, 7-11 John Street, Porthcawl, Bridgend, CF36 3AP

CLIENT: - Easy Living Limited

JOB NO			Date:	04.04.2024	05.04.2024	22.04.2024	25.04.2024	03.05.2024	23.05.2024	24.05.2024	05.06.2024	11.06.2024	28.08.2024	06.09.2024	18.10.2024	22.10.2024
1047	Building Regulations		June 2023													
DWG NO	**SIZE**	**APP**	**DRAWING TITLE**													
1047.01	A0	✓	Proposed Setting Out Plan	F	G	H	H	I	I	I	I	J	K	L	M	M
1047.02	A0	✓	Proposed Ground Floor Plan	K	L	M	M	M	M	M	M	N	N	N	O	O
1047.03	A0	✓	Proposed First Floor Plan	J	K	L	L	L	L	L	L	M	M	M	N	N
1047.03-1	A0	✓	Proposed First Floor Plan - Residential													*
1047.04	A0	✓	Proposed Second Floor Plan	K	L	M	M	M	M	M	M	N	N	N	O	P
1047.05	A0	✓	Proposed Third Floor Plan	J	K	L	L	L	L	L	L	M	M	M	N	N
1047.06	A0	✓	Proposed Fourth Floor Plan	H	I	J	J	J	J	J	J	K	K	K	M	M
1047.07	A0	✓	Proposed Roof Plan	D	E	F	F	F	F	F	G	G	G	G	H	H
1047.08	A1	✓	Proposed Section A-A	B	B	C	C	C	C	C	C	C	C	C	D	D
1047.09	A1	✓	Proposed Section B-B	D	D	E	E	E	E	F	F	G	G	G	H	H
1047.10	A1	✓	Proposed Section C-C	D	D	E	F	F	F	G	G	H	H	H	I	I
1047.11	A1	✓	Proposed Section through Staircases	A	A	B	B	B	C	D	D	E	E	E	F	F
1047.12	A0	✓	Proposed Elevations	C	C	C	E	E	E	E	F	F	F	F	G	G
1047.13	A0	✓	Proposed Elevations	D	D	D	E	E	E	E	F	F	F	F	G	G
1047.13-1	A0	✓	Proposed Elevation – FF Residential													*
1047.14	A1	✓	Proposed Opening Schedules and Door Schedules	H	H	H	H	H	H	H	H	I	I	I	I	J
1047.14-1	A2	✓	Proposed Door Schedules – FF Residential													*
1047.15	A1	✓	Proposed Site Plan	A	A	A	A	A	A	A	A	A	A	A	B	B
~~1047.16~~	~~A1~~	✓	~~Additional Notes~~	*	*	*	*	*	*	*	*	*	*	*	-	-
1047.17	A1	✓	Proposed Cycle Rack	*	*	*	*	*	*	*	*	*	*	*	A	A
1047.18	A1	✓	Proposed 3D Visuals	*	*	*	*	*	*	*	*	*	*	*	*	*

PRIME ARCHITECTURE

Unit 4, 3 Llandeilo Road, Cross Hands, Llanelli, SA14 6NA

Tel: 01269 842 575
E: info@prime-arch.co.uk
W: www.prime-arch.co.uk

DRAWING ISSUE REGISTER

PROJECT:
Porthcawl Hotel, 7-11 John Street, Porthcawl, Bridgend, CF36 3AP

CLIENT: - Easy Living Limited

JOB NO			Date:	05.09.2024
1047	Building Regulations Details – Existing Building		August 2024	

DWG NO	SIZE	APP	DRAWING TITLE	
1047.D01	A4		Ground Floor Detail	*
1047.D02	A4		GF Threshold Detail	*
1047.D03	A4		Upper Floor Detail	B
1047.D04	A4		Window Head & Cill Detail	*
1047.D05	A4		Eaves and Ceiling Detail	A
1047.D06	A3		Party Wall and Stepped Roof Detail	*
1047.D07	A4		Flat Roof and Lightwell Detail	*
1047.D08	A4		Roof Verge Detail	*
1047.D09	A4		Party Wall and GF Detail	*
1047.D10	A3		Party Wall between Buildings Detail	*
1047.D11	A4		Partition Wall Detail	*
1047.D12	A4		Window Jamb Detail	*
1047.D13	A4		Stell Column in Boxing Detail	*
1047.D14	A4		Spandrel Panel Detail	A
1047.D19	A3		Typical DQR Kitchens	*
1047.D20	A3		Typical DQR Bathroom Layout	*

1047.D30
1047.D31
1047.D35
1047.D36
1047.D40
1047.D41
1047.D45
1047.D46
1047.D50
1047.D51
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1047.D67

APPENDIX D - ACOUSTIC TERMINOLOGY

The following terms have been used in this report:

Absorption
Conversion of sound energy into heat, often by the use of a porous material.

Absorbent material
Material that absorbs sound energy.

Airborne sound
Sound propagating through the air, often linked to noise sources such as speech and television.

Airborne sound insulation
Sound insulation that reduces the transmission of airborne sound between adjoining dwellings or parts of adjoining dwellings.

Block density
The net density of the block (kg/m^3), measured at the appropriate moisture content from Table 3.2 CIBSE Guide A (1999), necessary to achieve the required mass per unit area (kg/m^2) of wall.

Block thickness
The block thickness quoted is the work size. Permissible manufacturing tolerances in accordance with the appropriate material part of BS EN 771.

Built in insulation
Insulation batts built in during construction (not pumped or blown material).

Cavity stop
A proprietary product or material such as mineral wool (fibre) used to close the gap in a cavity wall.

Composite resilient batten
A timber batten which is composed of a timber batten with a prebonded resilient material to provide isolation between the flooring surface layers and floor base.

Cradle/Saddle
An intermediate support system (with a resilient layer base) which uses levelling packer pieces to support a timber batten, isolating it from the floor base.

C_{tr}
Spectrum adaptation term (No.2) from BS EN ISO 717-1 to take account of a specific sound spectra (which are predominantly low frequency based).

Decibel (dB)
The unit used for different acoustic quantities to indicate the level with respect to a reference level.

Density (kg/m^3)
Mass per unit volume, expressed in kilograms per cubic metre (kg/m^3).

Direct transmission
Sound which is transmitted only through the main separating element and involves no other flanking element.

D_{nT}
Standardised level difference. The difference in sound level between a pair of rooms (source and receiving rooms), for a stated frequency, which is corrected (normalised) for the reverberation time (in the receiving room). See BS EN ISO 140-4.

$D_{nT,w}$
Weighted standardised level difference. A single number quantity (weighted) which characterises the airborne sound insulation between two rooms. See BS EN ISO 717-1.

$D_{nT,w} + C_{tr}$
Weighted standardised level difference which characterises the airborne sound insulation between two rooms using spectrum adaptation term (No.2) from BS EN ISO 717-1.

Flanking element (e.g. flanking wall)
Any building element that contributes to the airborne sound or impact transmission between rooms in a building which is not the direct separating element (i.e. not the separating wall or separating floor).

Flanking strip or edge strip
A 5mm (min) resilient strip which is located at the perimeter of a floor to isolate the floor surface layer from the perimeter walls and skirtings. A typical example of a flanking strip is 5mm (min) foamed polyethylene. Rigid boards, (such as extruded, expanded or bead polystyrene) or mineral wool based products may not be used as a flanking strip where the walking surface is board based. For screed floating floors the permitted flanking strip or edge strip detail will be dependent on the resilient layer system adopted and the relevant Robust Detail must be strictly followed.

Flanking transmission
Airborne sound or impact transmission between rooms which is transmitted via flanking elements and/or flanking elements in conjunction with the main separating elements.

Flexible closer
A flexible cavity stop or cavity barrier which seals the air path in cavities linking adjoining dwellings.

Floating floor treatment
A timber floating floor system which may use battens, cradles or platform base; all of which use a resilient layer to provide isolation from the base floor and adjacent wall elements.

Flooring board
The boards which form the top surface of the floor. Boards should be wood-based panels 600mm (min) wide.

Habitable room
For the purposes of Building Regulations Approved Document Part E, habitable rooms are all rooms except the hall, staircase and landing.

Internal wall
A wall or partition which divides the dwelling space into different functions but which does not provide separation between different dwellings.

Internal floor
A floor which divides the dwelling space into different functions but which does not provide separation between different dwellings.

L'_{nT}
Standardised impact sound pressure level. The impact sound pressure level in the receiving room at a stated frequency, corrected (normalised) for the reverberation time in the receiving room. See BS EN ISO 140-7.

$L'_{nT,w}$
Weighted standardised impact sound pressure level. A single-number quantity (weighted) to characterise the impact sound insulation of floors. See BS EN ISO 717-2.

Mass per unit area (or surface density)
Mass per unit area is expressed in kilograms per square metre (kg/m^2).

Mineral wool
A rock or glass based mineral material which can be manufactured in a quilt form or batt (more rigid) form.

Nominal density of gypsum-based board
The density stated in this report with a tolerance of up to -0.3 kg/m^2 per layer

Proprietary screed
A self-compacting floor screed, which achieves a nominal mass per unit area of 80 kg/m^2 as laid, without the requirement for manual or mechanical compacting.

R_w
A single-number quantity (weighted) which characterises the airborne sound insulation of a building element from measurements undertaken in an acoustic test laboratory. See BS EN ISO 717-1.

Robust Detail
A Robust Detail for Part E of the Building Regulations has been given the status of Robust Detail following a minimum of 30 “field tests” where the recorded mean performance was 5dB better than the sound insulation requirements as described in Approved Document E for new build separating walls and floors.

Sealant (acoustic or flexible)
A gun-applied sealant which has resilience and forms a non-rigid caulking.

Separating floor
A floor that separates adjoining dwellings.

Separating wall
A wall that separates adjoining dwellings.

Spandrel panel
An element manufactured to divide or close off the profile in the roof space.

T&G
Tongue and groove edged jointing of flooring boards (bonded lapped joints are also acceptable)