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# ACOUSTIC INSULATION ASSESSMENT AND SPECIFICATION PROPOSED ALTERATIONS, 27-29 BAWDLANDS, CLITHEROE, LANCS., BB7 2LA

# 1. Introduction

This document provides an assessment of the acoustic insulation properties existing fabric of the building and the addresses the actions required to provide acoustic insulation to attain compliance with Building Regulations Approved Document, Part E1 & E2, 2015 – Resistance to Passage of Sound.

Any remedial specifications are designed to match or exceed the stipulated levels required by Building Regulations.

In preparing this assessment reference has been made to technical information contained within:

- "The British Gypsum White Book"
- "Robustdetails® Technical Handbook September 2023".
  The robustdetails® scheme is an alternative to pre-completion sound testing to satisfy Approved Document E of The Building Regulations

# 2. The Existing Structure

# Party & External Walls:

The measured and visual survey indicates that the external walls to the front, side and rear are 545mm thick and constructed of clay brickwork.

The worst case scenario is that the party wall is 440mm thick clay brick and this is used for assessing the acoustic properties of the existing building.

# First Floor:

The first floor comprises 25mm thick softwood timber board over 175 x 50mm softwood timber joists at 400mm centres. The ceiling finish to the underside is 12.5mm thick plasterboard with a plaster skim finish.

#### 3. Acoustic Assessment of the Existing Structure

#### Party walls:

One brick thick walls with an unplastered can achieve a sound reduction index of 50dB. The nominal density of clay brick being 1690kg/m<sup>3</sup>

#### First Floor:

Typically this type of timber floor construction would result in noise levels 78dB for Impact noise and 38dB for Airborne noise

#### 4. Matters to address

The proposed alterations require that the works are to comply with Building Regulations Approved Document E.

Section 0: Performance, Table 0.1a details the minimum performance standards required for walls and floors to satisfy the requirements of Part E1 & E2.

	Airborne sound insulation sound insulation D <sub>nT,w</sub> + C <sub>ir</sub> dB (Minimum values)	Impact sound insulation L'nग,w dB (Maximum values)
Purpose built dwelling-houses and flats		
Walls	45	1 <b>-</b>
Floors and stairs	45	62
Dwelling-houses and flats formed by material change of use		
Walls	43	1 <b>-</b> 111
Floors and stairs	43	64

Extract from Approved Document E

#### 5. Action Required to Comply with Approved Documents

#### Party Wall:

The existing walls are a minimum of 440mm thick brick and this will provide an Airborne sound index of 55db > 43dB minimum requirement.

2.35 Wall type 1.3 Brick, plaster on both room faces (see Diagram 2.4)

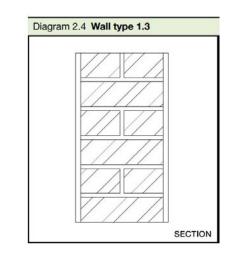
- minimum mass per unit area including
- plaster 375kg/m<sup>2</sup>;
- 13mm plaster on both room faces;
- bricks to be laid frog up, coursed with headers.

#### Example of wall type 1.3

The required mass per unit area would be achieved by using

- 215mm brick
- brick density 1610kg/m<sup>3</sup>
- 75mm coursing
- 13mm lightweight plaster (minimum mass per unit area 10kg/m<sup>2</sup>) on both room faces

This is an example only. See Annex A for a simplified method of calculating mass per unit area. Alternatively use manufacturer's actual figures where these are available.



Extract from Approved Document E

#### First Floor:

The Impact noise level needs reducing to at least 64dB, and the Airborne sound level needs increasing to a minimum of 43dB.

In addition to achieving compliance with Approved Document E, the first floor between the ground floor and the first floor needs to comply with Building Regulations Approved Document B: Fire Safety. The floor structure needs to be 60 minutes fire resistant, so the existing structure will need to be upgraded.

	BS			ard to new or existing solid nents of <i>BS 476: Part 21</i> : 19			Ð	
0			0		0		2212	
	XXXXXX					XXXXX	$\mathbb{M}$	
	22mm t8g (softwoo			nm t&g isoftwood or chipboard) floc		m t&g(softwood or chip		
bearding over minimum 195 mm x 38mm timber joists at 600mm centres. Gypframe RB2 SureFix				boarding over minimum 195mm x 38mm timber joists at 600mm centres. Gypframe RB1		boarding over minimum 195mm x38mm		
						timber joists at 600mm centres. Gypt ame RB1		
Bars fixed to underside of joists at 450mm centres and at perimeter with ceiling linings as in table fixed into the bars only 100mm isover			s as 450m	Resilient Bars fixed to underside of joists at 450mm centres and at perimeter with celling linings as in table fixed into the bars only.		Resilient Bars fixed to underside of joists at 45 0mm centres and at perimeter with celling linings as in table fixed into the bars only.		
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according to missin oppoint recommendations, me quotes performances are achieved only in errors oppoint components are used innoighout, and the component and the specifications should be checked with fittish Gypsum.

3 Where boards are fixed direct to timber joists, Gyproc Drywall Timber Screws should be used as opposed to nail-fixing to minimise the risk of fixing defects occurring.

Extract from British Gypsum White Book

Existing ceiling to be removed and replaced with 2no layers British Gypsum Soundblock fixed to RB1 resilient bars at 450mm centres. 100mm Isover General Purpose Roll between joist with minimum 22mm timber board finish over. This provides Impact noise reduction to 60dB < 64dB and Airborne sound reduction increase to 54dB > 43dB

Signed:



Paul Derbyshire Dip.Surv.

Dated: 10th May 2024