
Internal Sound Insulation Desktop Assessment

Calculations in Accordance with Approved Document
E and BS8233:2014

SITE ADDRESS:

74 School Rd, Tilehurst, Reading RG31 5ST

CLIENT PERFORMED FOR:

Nick Edwards

TECHNICIAN:

NILAV BABARIYA | A.M.I.O.A.

BEng (Hons) Civil Engineering | On Site Testing: Team Lead

Nilav@airtightbuildingsolutions.co.uk

+44 (0) 7482 315963

Report Reference: ABSLSIDA260726-01

Planning Reference: Pre-Planning Stage

Condition Number: N/A - Pre-Planning Stage

Date of Original Report: 26/07/26

Floors(AB) – Improvement Above ADE Required: 55 dB $D_{nT,w} + C_{tr}$

Revision	Description	Issued by	Date
-	First Issue	Nilav Babariya	26/07/26

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	Name	Qualifications	Initials	Date
Prepared by:	Nilav Babariya	AMIOA, CCENM, CCBAM	NB	26/07/26
Checked by:	Suresh Babariya	CCENM, CCBAM	SB	26/07/26
Signed:				
 				

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Desktop Report Summary

Airtight Building Solutions Ltd has been requested to carry out a sound insulation assessment of the party walls and floors between **74 School Rd, Tilehurst, Reading RG31 5ST**. The scheme includes refurbishment and improvement of separating floors.

The building is required to achieve the sound insulation performance criteria within Approved Document E (ADE) 'Resistance to the passage of sound' of the Building Regulations but also exceed it to meet local authority requirements by **+12dB over building regulations**.

The purpose of this design note is to provide a review of the sound insulation performance for the separating walls and floors within the development.

Desktop audit showed that the FLOOR(S) assessed is likely to MEET and exceed at least the requirements of Approved Document E and planning requirements with respect to AIRBORNE sound insulation provided that all works are undertaken as per specification and manufactures guideline

Objectives

To carry out Desktop Internal Sound Insulation Report to comply to **Pre-Planning Stage Requirements** at the following property: **74 School Rd, Tilehurst, Reading RG31 5ST**

Assessment Details

Type of property:	Flat conversion
Age of property:	N/A
Tests carried out by:	Airtight Building Solutions Ltd. 11 Imperial Drive, London, HA2 7BP

Test Technician / Engineer:	Nilav Babariya
Laboratory Manager:	Suresh Babariya
Client:	Nick Edwards
Description of Background Noise:	Light vehicular traffic noise

Desk top audit has been carried in full accordance with the procedures set out in Approved Document E [1], and the following standard(s):

BS EN ISO 140-4: 1998 [2]
BS EN ISO 140-7: 1998 [3]

The sound insulation ratings were calculated in full accordance with:

BS EN ISO 717-1: 1997 [4]
BS EN ISO 717-2: 1997 [5]

Performance Standards and Results

Performance Standards Table(Approved Document E)

The table below is taken from Building Regulations Approved Document E. Table 1.1 shows the required performance standard needed to pass a sound insulation test for separating walls and floors for dwelling houses and flats.

Table 1.1 – ADE Houses and Flats Targets		
	Airborne Sound Insulation $D_{nT,w} + C_{tr}$	Impact Sound Insulation $L'_{nT,w}$
Purpose built dwelling houses and flats		
Walls	45dB	-
Floor	45dB	62dB
Dwelling houses and flats formed by material change of use		
Walls	43dB	-
Floors	43dB	64dB

The table below is taken from Building Regulations Approved Document E. Table 1.2 shows the required performance standard needed to pass a sound insulation test for separating walls and floors for Rooms for residential purpose.

Table 1.2 – ADE Rooms For Residential Purpose Targets		
	Airborne Sound Insulation $D_{nT,w} + C_{tr}$	Impact Sound Insulation $L'_{nT,w}$
Purpose built Rooms for Residential Purpose		
Walls	43dB	-
Floor	45dB	62dB
Rooms for residential purpose formed by material change of use		
Walls	43dB	-
Floors	43dB	64dB

Predictive Sound Insulation Requirements

To comply with Planning a sound insulation assessment of party floors has been carried out to ensure future habitants are not unduly affected by noise and activities within adjoining flats.

Design Targets

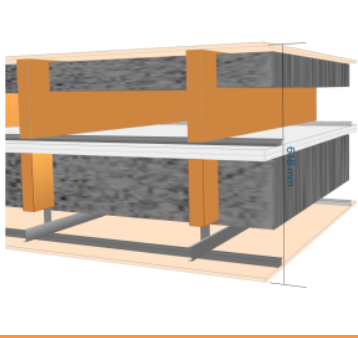
Table 2.1 – Compliance Targets			
Sound Insulation Performance	ADE Requirements	On-site Predictions (based on assessment build ups)*	Laboratory Tested Values
Airborne Floors	$\geq 43\text{dB } D_{nT,w} + C_{tr}$	$\geq 55\text{ dB } D_{nT,w} + C_{tr}$	$\geq 55\text{ dB } R_w + C_{tr} + 7$

*Note that the values within Table 2.1 are on-site performance targets. The sound insulation of various construction elements are normally measured and rated in acoustic test laboratories, and quoted in terms of the sound reduction index, R_w . Using a minimum sensible design tolerance, we calculate that the following laboratory measure of sound insulation is required.

Separating Floor Construction

To meet the acoustic performance targets for separating floors the following specifications are provided:

Table 3.1 – Main separating floor construction

Section View	Construction Specification	Acoustic Rating
	1 x 10 mm Plasterboard Solid Joist with resilient rail (250 mm x 45 mm), Stud spacing 600 mm , Cavity Width 268 mm + 100 mm Rockwool (100kg/m ³) 1 x 15 mm Gyproc Wallboard 15mm + 1 x 15 mm Gyproc SoundBloc 15mm Solid Joist with Gyproc acoustic hanger (187 mm x 45 mm), Stud spacing 600 mm , Cavity Width 300 mm + 200 mm Rockwool (48kg/m ³) 1 x 10 mm Plasterboard Panel Size 2.7 m x 4.0 m, Partition surface mass = 56.2 kg/m ² , Mass-air-mass resonant frequency = : 36 Hz, 46 Hz	66 dB $R_w + C_{tr}$

Calculations show that the proposed floor construction will achieve the design targets set out in Table 2.1 above once constructed correctly. It is seen as the responsibility of the main designer and contractor to ensure all junctions and interfaces are detailed correctly. Sound insulation data sheets for the proposed constructions are provided in Appendix D.

Construction Notes:

- Calculations are based on an independent drop ceiling not connected to existing joists in any way.
- Ensure ceilings are fully complete with no service penetrations.
- Care must be taken to ensure the insulation layer is fully complete with no airgaps between separate layers of insulation (horizontally flush).
- Acoustic enclosures should be used around spotlights.

Predictive Desktop Analysis Results

Predicted Desk top analysis results of the sound insulation tests are documented below in Table 4.1

Table 4.1 - Predictive Desktop Analysis Test Results					
Test Type	Source Room	Receive Room	Required dB	Predictive dB Dntw+Ctr	Pass / Fail
Floor Airborne	GF - Commercial	1 st F – Front Bedroom	≥43dB	55 dB	Pass

REFERENCES

The Building Regulations 2010

Approved Document E: Resistance to the Passage of Sound (2003 Edition incorporating 2004 and 2010 amendments)

1. ISBN 978 1 85946 204 1

BS EN ISO 140-4: 1998

Acoustics – Measurement of sound insulation in buildings and of building elements

2. Part 4: Field measurements of airborne sound insulation between rooms

BS EN ISO 140-7: 1998

Acoustics – Measurement of sound insulation in buildings and of building elements

3. Part 7: Field measurements of impact sound insulation of floors

BS EN ISO 717-1: 1997

Acoustics – Rating of sound insulation in buildings and of building elements

Part 1: Airborne sound insulation

BS EN ISO 717-2: 1997

Acoustics – Rating of sound insulation in buildings and of building elements

Part 2: Impact sound insulation

Appendix 1 - Glossary Of Terms

Airborne Sound : Sound propagating through the air

Airborne Sound Insulation : Sound insulation which reduces the amount of airborne sound passing between buildings or parts of buildings

C_{tr} : The correction applied to a sound insulation rating (such as $D_{nT,w}$) to take into account specific sound spectra

Decibel (dB) :The unit used in acoustic measurement to describe one level with respect to a pre-defined reference level

$D_{nT,w}$:The weighted standardised level difference – a single number figure used to characterise the airborne sound insulation between rooms

Hertz (Hz) : The unit of measurement of frequency (cycles per second)

Impact Noise : Sound (generally from foot-falls) propagating through the material of the building

Impact Noise Insulation : Sound insulation which reduces the amount of structure-borne sound passing between buildings or parts of buildings

$L'_{nT,w}$: The weighted standardised impact sound pressure level – a single number figure used to characterise the impact sound insulation of floors

Noise : Unwanted sound

Reverberation Time (RT_{60}) : An indication of the amount of absorption in a room. The time (in seconds) taken for the noise level in a room to decay by 60dB

Types of Separating Walls

Wall Type 1: *Solid Masonry*

Wall Type 2: *Cavity Masonry*

Wall Type 3: *Masonry between independent panels*

Wall Type 4: *Framed walls with absorbent material*

Types of Separating Floors

Floor Type 1: *Concrete base with ceiling and soft floor covering*

Floor Type 2: *Concrete base with ceiling and floating floor*

Floor Type 3: *Timber frame base with ceiling and platform floor*

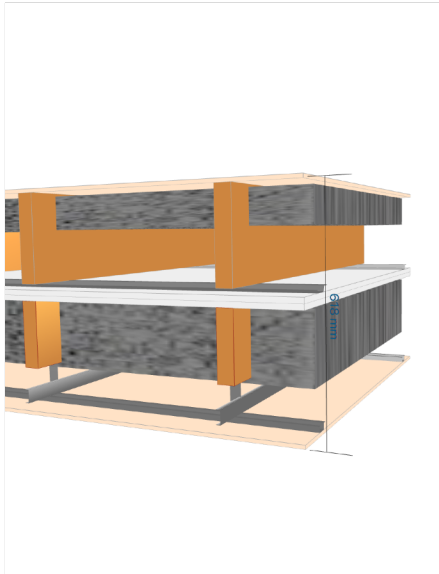
Appendix 2 – Test Chart(s) and Drawings

Sound Insulation Prediction (v10.0.5)

Program copyright Marshall Day Acoustics 2023 | Margin of error is generally within $R_w \pm 3$ dB

Date: 10/06/2025

Job Name:



R_w 78 dB

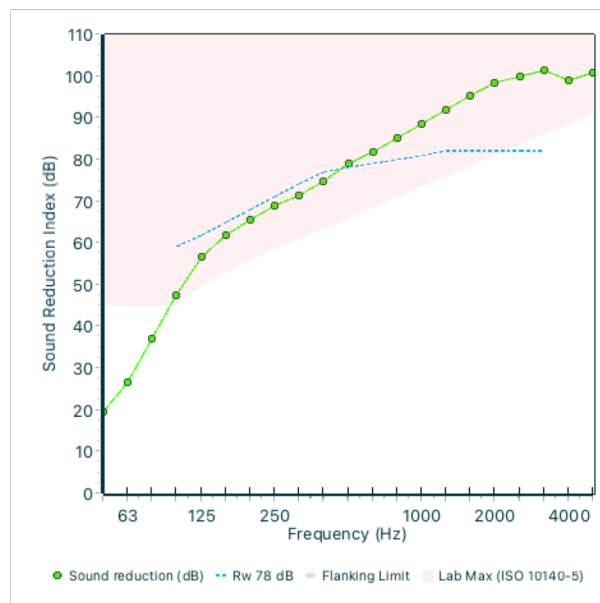
C -4 dB

Ctr -12 dB

System description

Panel 1 1 x 10 mm Plasterboard
 Frame Solid Joist with resilient rail (250 mm x 45 mm), Stud spacing 600 mm , Cavity Width 268 mm + 100 mm Rockwool (100kg/m³)
 Panel 2 1 x 15 mm Gyproc Wallboard 15mm + 1 x 15 mm Gyproc SoundBloc 15mm
 Frame Solid Joist with Gyproc acoustic hanger (187 mm x 45 mm), Stud spacing 600 mm , Cavity Width 300 mm + 200 mm Rockwool (48kg/m³)
 Panel 3 1 x 10 mm Plasterboard
 Details Panel Size 2.7 m x 4.0 m, Partition surface mass = 56.2 kg/m², Mass-air-mass resonant frequency = : 36 Hz, 46 Hz

freq. (Hz)	R (dB)	Roct (dB)
50	20	
63	27	24
80	37	
100	47	
125	57	52
160	62	
200	66	
250	69	68
315	71	
400	75	
500	79	78
630	82	
800	85	
1000	89	88
1250	92	
1600	95	
2000	98	98
2500	100	
3150	101	
4000	99	100
5000	101	

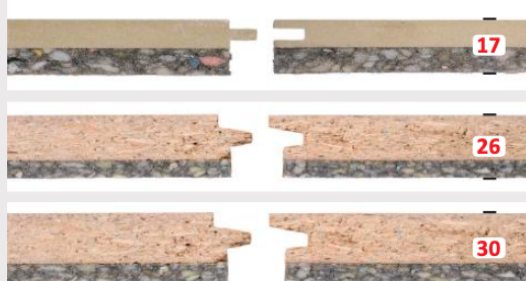


Technical Information



DECKfon® 17T, 26T & 30T

Composite Acoustic Overlay Floorboards for Refurb and Conversion Applications



Product Information

DECKfon® composite overlays are the ideal acoustic treatment to improve the performance of an existing structural timber decked floor. All three treatments combine a tongue and groove timber floorboard with a low resonance, flexible resilient foam.

Product Benefits

- Excellent acoustic performance
- Three thickness' available: 17, 26 & 30mm
- Moisture resistant T & G floorboard
- Recycled resilient layer
- Quick and easy to install

Technical Data

		DECKfon®		
		17T	26T	30T
Product description	-	Acoustic overlay floorboard	Acoustic overlay floorboard	Acoustic overlay floorboard
Overall thickness	mm	17	26	30
Type of facing board	-	9mm MR MDF	18mm P5 Chipboard	22mm P5 Chipboard
Resilient layer	-	8mm open-cell PU foam	8mm open-cell PU foam	8mm open-cell PU foam
Board dimensions	mm	600 x 2400	600 x 2400	600 x 2400
Weight	kg/m² kg/board	7.25 10.44	13.80 19.87	16.00 23.04
Associated flanking strip required	-	YELOfon ES5/60	YELOfon FS30	YELOfon FS30

Third Party Accreditation and Approvals

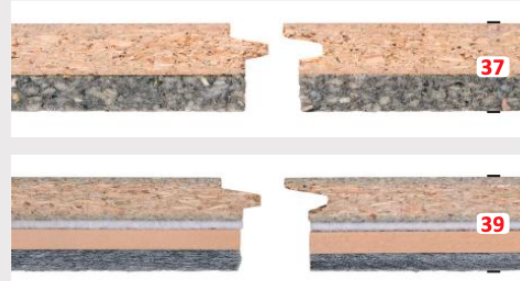


Environmental Credentials



DECKfon® 37T & Quattro 39

Direct to Joist Structural Deck Acoustic Floorboards



Product Information

CELLECTA DECKfon® structural acoustic composite floorboards are designed to be laid directly on the floor joists to provide outstanding sound proofing.

37T is designed for timber floors where a new ceiling is to be installed.

Quattro 39 is for floors where the existing ceiling is retained.

Product Benefits

- Excellent acoustic performance
- Two types available: 37T (37mm) and Q39 (39mm)
- Incorporate moisture resistant structural floorboard
- Recycled resilient layer
- Quick and easy to install

Technical Data

		DECKfon®	
		37T	Quattro 39
Product description	-	Direct to joist, two layer composite acoustic structural floorboard	Direct to joist, four layer composite acoustic structural floorboard
Overall thickness	mm	37	39
Type of facing board	-	22mm P5 chipboard	18mm P5 chipboard
Resilient layer(s)	-	15mm open-cell PU foam*	3mm fleece & 8mm fleece
Board dimensions	mm	600 x 2400	600 x 2400
Weight	kg/m² kg/board	16.70 24.05	20.95 30.17
Associated flanking strip required	-	YELOfon ES5/100	YELOfon ES5/100

Third Party Accreditation and Approvals



Environmental Credentials



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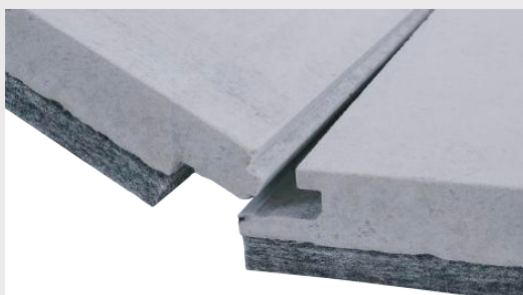
technical@cellecta.co.uk

Technical Information



ScreedBoard® 28

The **Ultimate** Acoustic Overlay Board for All Types of Separating Floors



Product Information

ScreedBoard® 28 is an award winning composite acoustic overlay treatment, featuring interlocking edges for installation convenience. Its high density and unique resilient layer provides unrivalled acoustic performance, typically 5dB better than legislative requirements.

Product Benefits

- Unrivalled performance - **Robust Detail** proprietary treatment: **E-FS-3**, **E-FT-5**, **E-FT-6** and **FFT4** compliant
- Suitable for all types of steel, concrete and timber floors
- Looks and feels like screed
- Directly accepts all types of floor covering, inc. floor tile

Technical Data

ScreedBoard® 28			 CLASS Bfl,s1 BS EN13501-1
Product description	-	High density composite acoustic overlay floorboard	
Thickness	mm	28	
Facing Board	-	20mm ScreedBoard 20 (interlocking, HD gypsum)	
Resilient layer	-	8mm FIBREfon 8 acoustic fleece	
Edge profile	-	Interlocking tongue & groove	
Board dimensions	mm	600 x 1200	
Weight	kg/m² kg/board	26.00 18.72	
Associated flanking strip options	-	YELOfon FS15, 30, 50	

Third Party Accreditation and Approvals



Environmental Credentials



ScreedBoard® 30

The **Ultimate** Acoustic Overlay Board for Concrete Separating Floors



Product Information

ScreedBoard® 30 composite acoustic overlay treatment is designed specifically for concrete separating floors. The board's high density and superior compressive strength resilient layer provides outstanding acoustic performance and is an ideal base to accept a multitude of floor finishes.

Product Benefits

- Looks and feels like screed
- Compatible with all types of concrete floors
- **Robust Detail** **FFT4** compliant acoustic treatment
- Interlocking edge detail
- Accepts all types of floor coverings, inc. brittle finishes

Technical Data

ScreedBoard® 30			 CLASS Bfl,s1 BS EN13501-1
Product description	-	Composite acoustic overlay floorboard	
Thickness	mm	30	
Facing board	-	20mm ScreedBoard 20 (interlocking, HD gypsum)	
Resilient layer	-	10mm FIBREfon 10 high load acoustic board	
Edge profile	-	Interlocking tongue & groove	
Board dimensions	mm	600 x 1200	
Weight	kg/m² kg/board	27.20 19.58	
Associated flanking strip options	-	YELOfon FS15, 30, 50	

Third Party Accreditation and Approvals



Environmental Credentials



DECKfon® ULTRAmat 15

High Density Composite Acoustic Overlay Mat



Product Information

DECKfon® ULTRAmat 15 high performance, three layer composite mat that will improve both the impact and airborne performance of a floor where there is limited room height available. Once laid, the mat can be covered with carpet or suitable wooden flooring.

Product Benefits

- ⬢ High acoustic performance
- ⬢ Only 15mm thick
- ⬢ Suitable for all floor types
- ⬢ High density: 15.8kg/m²
- ⬢ Quick and easy to lay. Cuts with a sharp knife

Technical Data

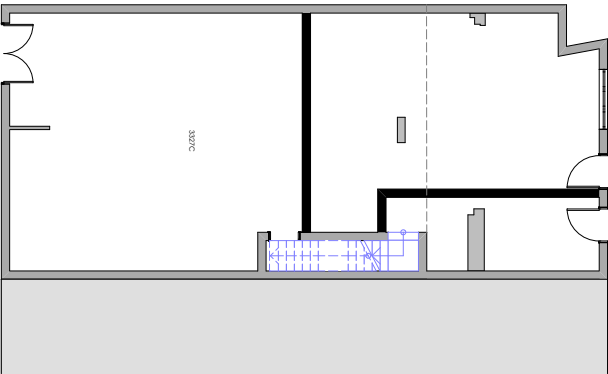
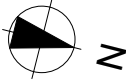
		DECKfon®
		ULTRAmat 15
Product description	-	Composite high density acoustic mat
Thickness'	mm	15
Mat dimensions	mm	1200 x 1200
Facing (top on bottom)	-	3mm recycled PVC with density fillers
Resilient core	-	9mm flexible open-cell PU foam
Weight	kg/m ² kg/mat	15.80 22.75
Associated flanking strip required	-	YELOfon ES5/15

Third Party Accreditation and Approvals

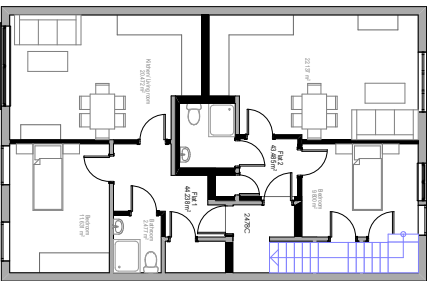


Environmental Credentials





1:100 Proposed Ground Floor Plan



1:100 First Floor

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Notes:

Date	Rev	Comments	By	Chkd



THE KEEN
PARTNERSHIP

The Courtyard
Edinburgh Road
Reading RG30 2UA
Tel: 0118 9510 855
Fax: 0118 9510 866
Chris@keenpartnership.co.uk
www.keenpartnership.co.uk

ric
cable

current association
of building engineers

RICS

Job Title:

74 School Rd, Tilehurst, Reading RG31 5ST, UK

Drawing Title:
Propose

Drawing No.
Proposed Ground & First Floor
Plan

Status:

08/04/24

Issue Date:

1/05/2024	PD	@A3
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Drawing No:

9329-108

Drawing No: