

NOISE IMPACT ASSESSMENT

1.0 Introduction

This noise impact assessment accompanies a detailed planning application for Conversion of existing detached dwelling house into House of Multiple occupation for 6 persons at 49 Gledwood Avenue, Hayes, UB4 0AW.

The technical content of this assessment has been provided by a Tech member of the Institute of Acoustics.

The Institute of Acoustics is the UK's professional body for those working in Acoustics, Noise and Vibration.

2.0 Sound Insulation Assessment

Controlling noise and sound transmission in a residential building is critical to the health and wellbeing of its occupants and adjoining neighbours.

Approval document E of the Building Regulations contains a set of airborne and impact sound insulation performance standards. Airborne sound includes sources such as TV, Music, Speech etc. Impact noise includes footsteps, scraping chairs and impacts associated with exercising regimes.

The inclusion of this clause demonstrates that the Council requires a high level of sound insulation between flats and adjacent properties.

The following Table 1 confirms the minimum sound insulation requirements of Part E.

Table 1 Base Levels	Airborne sound Insulation DnTw + Ctr, dB (Minimum values)	Impact sound Insulation L'nTw dB (Maximum values)
Purpose built dwelling-house and flats		
Walls	45	-
Floors and stairs	45	62
Dwelling-houses and flats Formed by material change of use		
Walls	43	-
Floors and stairs	43	64

Table 2 confirms the Council's minimum sound insulation requirements

Table 2 Enhanced Levels	Airborne sound insulation DnTw + Ctr, dB (Minimum values)	Impact sound insulation L'nTw dB (Maximum values)
Purpose built dwelling-house and flats		
Walls	50	-
Floors and stairs	50	57
Dwelling-houses and flats Formed by material change of use		
Walls	48	-
Floors and stairs	48	59

Meeting the enhanced requirements (Table 2) is not straightforward. As well as specifying separating floors and wall construction attention to 'Flanking' sound transmission is extremely important.

It is also important when selecting products to allow for the difference between laboratory test results and site test results. The difference can be up to 10dB. Therefore, to achieve a sound reduction of 55 DnTw + Ctr dB, a laboratory tested Rw value must be enhanced by 10dB.

3.0 Proposed Sound Insulation System

It is proposed that the following proprietary sound insulation system: DeckFon 30T

ACOUSTIC PRODUCT DATA SHEET **CELLECTA**

DECKfon[®] 17T, 26T, 30T

Acoustic floor board for refurb and conversion timber floors

DECKfon acoustic overlay treatments are designed for conversion projects where the joist are covered with a timber decking and the ceiling is to be replaced. When installed as part of an acoustic system they are fully compliant with Part E of the Building Regulations.

KEY BENEFITS

- Excellent soundproofing properties
- Quick and easy to install
- Three thickness' available 17, 26 & 30mm
- Tongue and groove edge detail
- Noisy neighbour solution



PHYSICAL PROPERTIES

Properties	Unit	DECKfon 17T	DECKfon 26T	DECKfon 30T
Resilient layer composition	-	Open-cell, low resonance, recycled, flexible polyurethane (Grade A2)		
Type and thickness of facing / batten	-	9mm MR MDF	18mm P5 chipboard	22mm P5 chipboard
Resilient layer thickness	mm	8	8	8
Overall thickness	mm	17	26	30
Board size / roll size / batten length	m	0.6 x 2.40	0.6 x 2.40	0.6 x 2.40
Weight	kg/m ²	7.45	13.40	16.20
	kg/ sheet	10.74	19.29	23.32

ADDITIONAL INFO

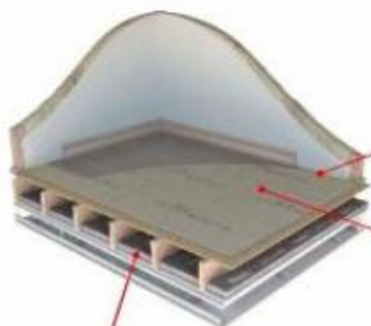
PCT Treatment  **TIMBER** 

Recycled Material 

 Installation video available on CELLECTA App

RESOURCES

PRODUCT APPLICATION INFORMATION



Refurbishment. Existing timber joists
Acoustic treatment laid on sub floor. Metal frame secondary ceiling



YIELDfon[®] FS30
Lightweight, flexible extruded polyethylene strips. When installed around the floor perimeter they will eliminate acoustic flanking with the wall and the treatments



OVERLAYfon[®] 17T Acoustic overlay board
OVERLAYfon[®] 26T Acoustic overlay board
OVERLAYfon[®] 30T Acoustic overlay board



PUFFfon[®] Micro 50

Sound absorbing quilt made from a unique polyester fibre which provides very high sound absorption properties. Thanks to their unique composition they are also super soft and itch-free unlike rock and mineral wools, making them easy to handle on site

INSTALLATION DETAILS

For the full installation guide, visit www.cellecta.co.uk and view the online video or download the Cellecta app to your smart phone.

- Remove the existing timber sub deck
- Install **PUFFfon[®] Micro 50** between the joists
- Re-install or replace the timber sub-deck
- Install **OVERLAYfon[®] 17T/26T/30T** on the sub deck
- Install **YIELDfon[®] FS30** around floor perimeter to prevent acoustic flanking

TECHNICAL ADVICE & SUPPORT

CELLECTA manufacture a range of high performance thermal and acoustic insulation products, supported by a technical advice line staffed by experienced consultants who can provide a number of useful services:

- Technical and installation advice
- Give advice on the most suitable product to use
- Supply detailed fixing instructions
- Arrange site surveys
- Design specifications

TYPICAL ACOUSTIC PERFORMANCE

OVERLAYfon[®] 26T



OVERLAYfon[®] 17T



OVERLAYfon[®] 30T



Separating floor - Timber (existing)

PCT solution

Existing timber joists
Acoustic treatment laid on sub-floor
Ceiling on resilient bars

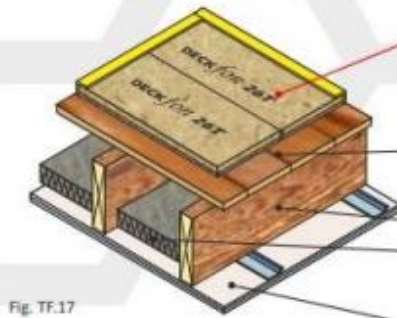


Fig. TF.17

Floating floor treatment options	CELLECTA DECKfon ® 17T
	CELLECTA DECKfon ® 26T
	CELLECTA DECKfon ® 30T
	(See Table TF.17 for full details)
Floor decking	15mm thick (min) OSB or existing floor boards (with all gaps sealed with suitable
Joists	Solid timber joists
Absorbing material	• 50mm CELLECTA FIBREfon ® Micro 50
	• 100mm (min) mineral wool insulation (45kg/m³) between joists
Ceiling	See Table TF.17 for ceiling treatment

FASTRACK CAD
ARCHITECTURAL CAD DETAILERS

NBS Plus

Table TF.17

Installation options		Ceiling treatment options
Resilient overlay shallow platform floor system DECKfon® 17T Composite acoustic overlay board Product information Board dimensions: 170mm x 600mm x 2400mm Edge profile: Tongue and groove (MS-M21) Weight: 7.40kg/m² / 10.74kg per board YIELDfon® ESS/60 perimeter flooring strip Dimensions: 20mm x 60mm x 10m		Ceiling boards must not penetrate or touch joints (Joist (joist) metal resilient bars) installed at right angles to the joist at 400mm centres. Ceiling treatment Two layers of gypsum-based board, composed of 25mm (nominal 12.5kg/m³) fixed with 25mm screws and a second layer of 15mm (nominal 12.5kg/m³) fixed with 40mm screws, with all joints staggered.
Resilient overlay shallow platform floor system DECKfon® 26T Composite acoustic overlay board Product information Board dimensions: 26mm x 600mm x 2400mm Edge profile: Tongue and groove (PS-chipboard) Weight: 13.40kg/m² / 19.25kg per board YIELDfon® FS30 pre-formed perimeter flooring strip Dimensions: 20mm x 30mm x 2m		Construction notes Materials must be installed in accordance with manufacturers' instructions for acoustic ceiling systems. Wall treatments should be isolated from the floating floor with YIELDfon flooring strips. Ensure verticals do not come into contact with the floor treatment. Once laid, 27T boards should be covered with the final floor finish as soon as possible to eliminate the risk of mechanical damage to the edge detail.
Resilient overlay shallow platform floor system DECKfon® 30T Composite acoustic overlay board Product information Board dimensions: 30mm x 600mm x 2400mm Edge profile: Tongue and groove (PS-chipboard) Weight: 13.80kg/m² / 19.70kg per board YIELDfon® FS30 pre-formed perimeter flooring strip Dimensions: 20mm x 30mm x 2m		Optional "DECO" oak effect faced chipboard available

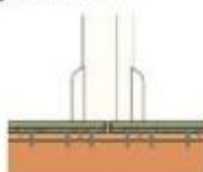
Design & installation details - PCT refurbishment treatments

The acoustic performance of the floor structure will be compromised if the acoustic treatment is not completely isolated from the timber joists, sub-floor, services, door frames, surrounding walls and their treatments. To address this risk, each potential problem area needs to be detailed accordingly.



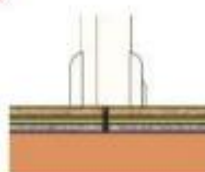
Installation video on the CELLECTA app

1 Door thresholds

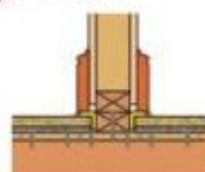


Leave a 5-10mm expansion gap between the flexible area floor treatment and the communal area floor treatment.

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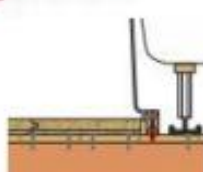


2 Timber stud partition



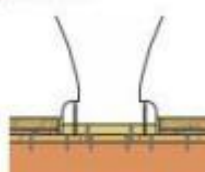
Lightweight internal walls should be built off the structural floor deck and MUST be isolated from the acoustic floor treatment with VALQ/ur 42 or FI strip.

3 Bath and shower trays



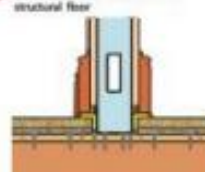
Baths and shower trays should be built off a structural floor and MUST be isolated from the acoustic floor treatment and any base treatment. Any gaps should be treated with a suitable mastic.

4 Sanitary ware



Sanitary ware should be built off a structural floor and MUST be isolated from the acoustic floor treatment and any base treatment. Any gaps should be treated with a suitable mastic.

5 Metal frame partition built off the structural floor



Lightweight internal walls built off the structural floor must be isolated from the acoustic floor treatment with VALQ/ur 42 or FI strip.

6 Wall treatment installed before the floor treatment



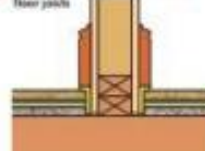
Wall treatments MUST be isolated from the acoustic floor treatment with VALQ/ur 42 or FI strip, and all gaps sealed with a suitable mastic.

7 Wall treatment installed after the floor treatment



Wall treatments MUST be isolated from the acoustic floor treatment with VALQ/ur 42 or FI strip, and all gaps sealed with a suitable mastic.

8 Lightweight partitions built off the floor joists



Lightweight internal walls built off the floor joists MUST be isolated from the acoustic floor treatment with VALQ/ur 42 or FI strip.

In the absence of laboratory test data, we have modelled the proposed structure with the following enhancements:

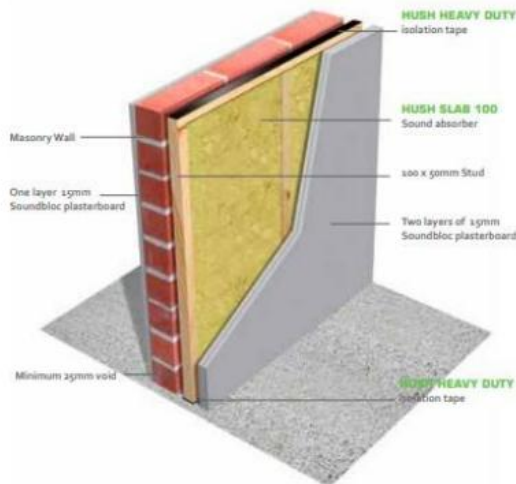
1.0 Ceiling Construction: 2x 15mm thick 'SoundBlock' on resilient rails.

2.0 Side 'Party Walls' to be acoustically lined with 2x 15mm timber framing on a Timber frame with 100mm thick 60kg/m³ Mineral Fibre. Similar to the 'Hush' Acoustics system below.

Ceiling Construction: 2x 15mm thick 'SoundBlock' on resilient rails.

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Side 'Party Walls' to be acoustically lined with 2x 15mm timber framing on a Timber frame with 100mm thick 60kg/m³ Mineral Fibre. Similar to the 'Hush' Acoustics system below.

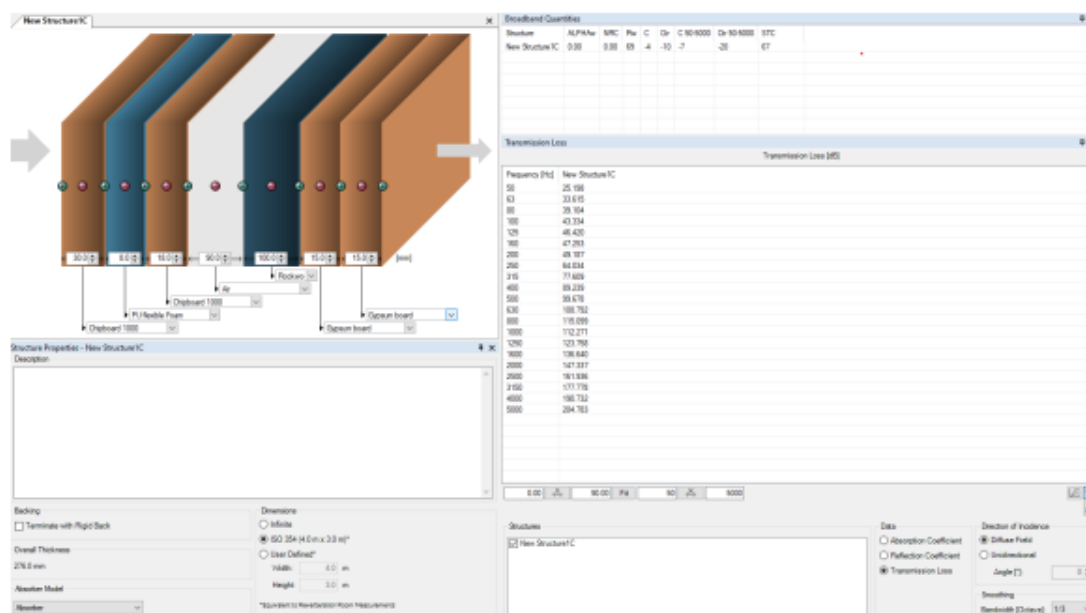
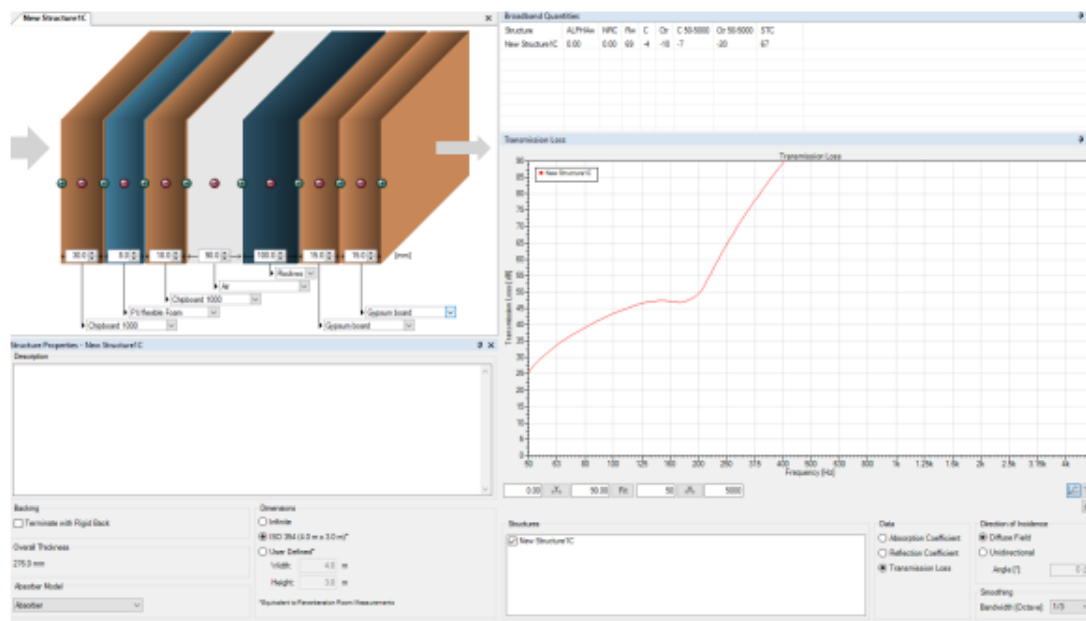


SPECIFICATION

- Construct a single frame of 50x100mm timber stud work independently from the existing masonry wall. Ensure there is a clear 25mm minimum gap from the existing masonry to the stud frame. Ensure the stud and track is isolated from the floor and ceiling structure using the Hush Heavy Duty Isolation Tape.
- Insulate within the stud using the Hush Slab 100 Sound Absorber. Ensure the Hush Slab is installed tightly within the stud frame and the gap from the timber frame to the masonry wall should remain clear at all time.
- Face the masonry side and the new timber frame with two layers of 15mm Soundbloc Plasterboards. Ensure the perimeters of the plasterboards are sealed with the Hush Acoustic Sealant.

All products to be installed in accordance with the manufacturer's guidelines

4.0 Floor/ Ceiling Modelling:



5.0 Discussions

The acoustic modelling indicates that the expected performance of the proposed structure with enhancements will be as follows:

Projected Airborne Sound Performance:

59 DnTw + Ctr dB.

Required as a minimum by Hillingdon Council:

50 DnTw + Ctr dB.

Projected Impact Sound Performance:

54 L'nTw dB.

Required as a minimum by Hillingdon Council:

59 L'nTw dB.

6.0 Conclusion:

The above demonstrates that the property once fully insulated will not generate materially greater noise, resulting in unacceptable disturbance to neighbouring residents.