

## NOISE IMPACT ASSESSMENT - 102 VICTORIA ROAD, RUISLIP, HA4 0AL

### 1.0 Introduction

This report accompanies a full planning application for Change of use to ground floor from retail shop (A1 Use Class) to Educational Support Centre (D1 Use Class).

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.

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 the ground floor unit 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)
<b>Purpose built dwelling-house and flats</b>		
<b>Walls</b>	<b>50</b>	<b>-</b>
<b>Floors and stairs</b>	<b>50</b>	<b>57</b>
<b>Dwelling-houses and flats Formed by material change of use</b>		
<b>Walls</b>	<b>48</b>	<b>-</b>
<b>Floors and stairs</b>	<b>48</b>	<b>59</b>

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**



## DECKfon<sup>®</sup> 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 <sup>2</sup>	7.45	13.40	16.20
	kg/ sheet	10.74	19.29	23.32

**ADDITIONAL INFO**



PCT  
Treatment



TIMBER



Recycled Material

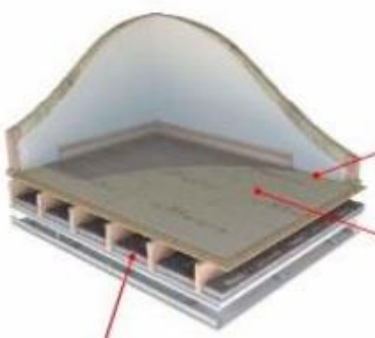


Installation video available on  
CELLECTA App


**RESOURCES**

## PRODUCT APPLICATION INFORMATION






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



**YIELDfon<sup>®</sup> FS30**  
Lightweight, flexible extruded polyethylene strips. When installed around the floor perimeter they will eliminate acoustic flanking with the wall and the treatments



**BUNKfon<sup>®</sup> 17T** Acoustic overlay board  
**BUNKfon<sup>®</sup> 26T** Acoustic overlay board  
**BUNKfon<sup>®</sup> 30T** Acoustic overlay board



**PUNKfon<sup>®</sup> 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](http://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 **PUNKfon<sup>®</sup> Micro 50** between the joists
- Re-install or replace the timber sub-deck
- Install **BUNKfon<sup>®</sup> 17T/26T/30T** on the sub deck
- Install **YIELDfon<sup>®</sup> FS30** around floor perimeter to prevent acoustic flanking

### TYPICAL ACOUSTIC PERFORMANCE


**BUNKfon<sup>®</sup> 26T**

Typical PCT performance  
 $R_w + C_1 = 51dB$   
 $L_{w,eq} = 57dB$



**BUNKfon<sup>®</sup> 17T**

Typical PCT performance  
 $R_w + C_1 = 50dB$   
 $L_{w,eq} = 56dB$



**BUNKfon<sup>®</sup> 30T**

Typical PCT performance  
 $R_w + C_1 = 51dB$   
 $L_{w,eq} = 56dB$



### 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

## Separating floor - Timber (existing)

## PCT solution

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



FASTRACKCAD  
ARCHITECTURAL CAD DETAILERS

NBSPlus

Table TF.17

Installation options		Ceiling treatment options
<p><b>Resilient overlay shallow platform floor system</b></p> <p><b>DECKfon® 17T</b> Composite acoustic overlay board</p> <p><b>Product information</b></p> <p>Board dimensions: 170mm x 600mm x 2400mm</p> <p>Edge profile: Tongue and groove (MS-MD1)</p> <p>Weight: 7.45kg/m² / 15.74kg per board</p> <p><b>YIELDfon® ESS/60</b> perimeter flooring strip</p> <p>Dimensions: 20mm x 60mm x 10m</p>	<p>Airborne: 51dB D<sub>nT</sub> + C<sub>w</sub></p> <p>Impact: 56dB L<sub>n</sub></p>	<p><b>Ceiling boards must not penetrate or break joints.</b></p> <p>25mm (max) metal resilient bars mounted at right angles to the joist at 400mm centres.</p> <p><b>Ceiling treatment</b></p> <p>Two layers of gypsum-based board, composed of 25mm (nominal 12.5kg/m²) fixed with 25mm screws and a second layer of 25mm (nominal 12.5kg/m²) fixed with 40mm screws, with all joints staggered.</p>
<p><b>Resilient overlay shallow platform floor system</b></p> <p><b>DECKfon® 26T</b> Composite acoustic overlay board</p> <p><b>Product information</b></p> <p>Board dimensions: 26mm x 600mm x 2400mm</p> <p>Edge profile: Tongue and groove (PS-chipboard)</p> <p>Weight: 13.40kg/m² / 29.28kg per board</p> <p><b>YIELDfon® F530</b> fire rated perimeter flooring strip</p> <p>Dimensions: 20mm x 60mm x 2m</p>	<p>Airborne: 50dB D<sub>nT</sub> + C<sub>w</sub></p> <p>Impact: 57dB L<sub>n</sub></p>	<p><b>Construction notes</b></p> <p>Materials must be installed in accordance with manufacturers' instructions to achieve stated acoustic values. Wall treatments 30/22/18 be isolated from the floating floor with YIELDfon® flooring strip.</p> <p>Brace brackets do not come into contact with the floor treatment.</p> <p>Once laid, 17T boards should be covered with the final floor finish as soon as possible to eliminate the risk of mechanical damage to the edge detail.</p>
<p><b>Resilient overlay shallow platform floor system</b></p> <p><b>DECKfon® 30T</b> Composite acoustic overlay board</p> <p><b>Product information</b></p> <p>Board dimensions: 30mm x 600mm x 2400mm</p> <p>Edge profile: Tongue and groove (PS-chipboard)</p> <p>Weight: 13.80kg/m² / 30.76kg per board</p> <p><b>YIELDfon® F530</b> fire rated perimeter flooring strip</p> <p>Dimensions: 20mm x 60mm x 2m</p>	<p>Airborne: 51dB D<sub>nT</sub> + C<sub>w</sub></p> <p>Impact: 56dB L<sub>n</sub></p>	<p>Optional "DECO" oak effect faced chipboard available.</p>

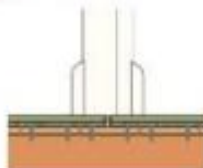
## Design & installation details - PCT refurbishment treatments

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.



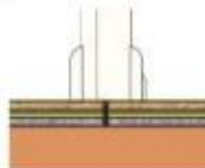
Installation video on the COLLECTA app

1 Door thresholds

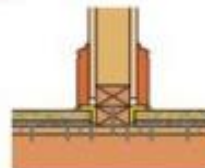


Leave a 5-10mm expansion gap between the subfloor and the structural floor treatment.

10

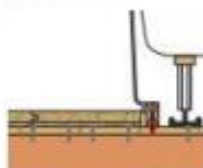


2 Timber stud partition



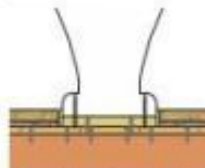
Lightweight internal walls should be built off the structural floor deck and **MUST** be isolated from the acoustic floor treatment with VELDOL or FI strips.

3 Bath and shower trays



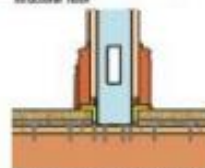
Bath and shower trays should be built off a structural floor and **MUST** be isolated from the acoustic floor treatment and any floor threshold. Any gaps should be sealed with a suitable mastic.

4 Sanitary ware



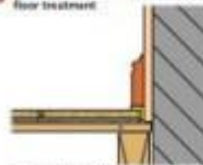
Sanitary ware should be built off a structural floor and **MUST** be isolated from the acoustic floor treatment and any floor threshold. Any gaps should be sealed with a suitable mastic.

5 Metal frame partition built off the structural floor



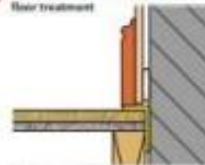
Lightweight internal walls built off the structural floor must be isolated from the acoustic floor treatment with VELDOL or FI strips.

6 Wall treatment installed before the floor treatment



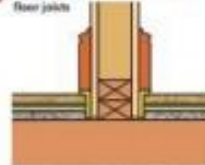
Wall treatments **MUST** be isolated from the acoustic floor treatment with VELDOL or FI strips, and all gaps sealed with a suitable mastic.

7 Wall treatment installed after the floor treatment



Wall treatments **MUST** be isolated from the acoustic floor treatment with VELDOL or FI strips, 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 VELDOL or FI strips.

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

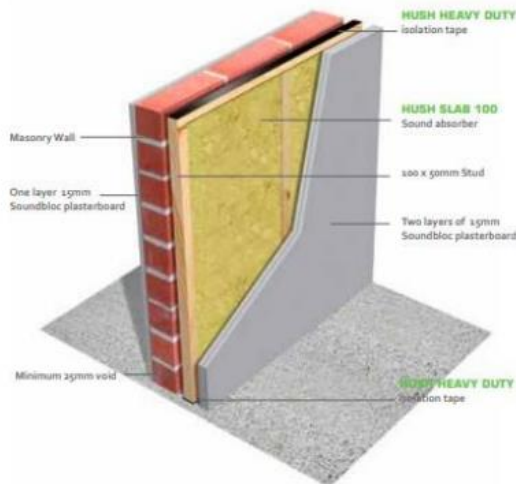
1.0 Ceiling Construction: 2x 15mm thick 'SoundBlock' on resilient rails.

2.0 Side 'Party Walls' to be acoustically lined with 2x 15mm timber framing on a Timber frame with 100mm thick 60kg/m<sup>3</sup> Mineral Fibre. Similar to the 'Hush' Acoustics system below.

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

P

Side 'Party Walls' to be acoustically lined with 2x 15mm timber framing on a Timber frame with 100mm thick 60kg/m<sup>3</sup> Mineral Fibre. Similar to the 'Hush' Acoustics system below.

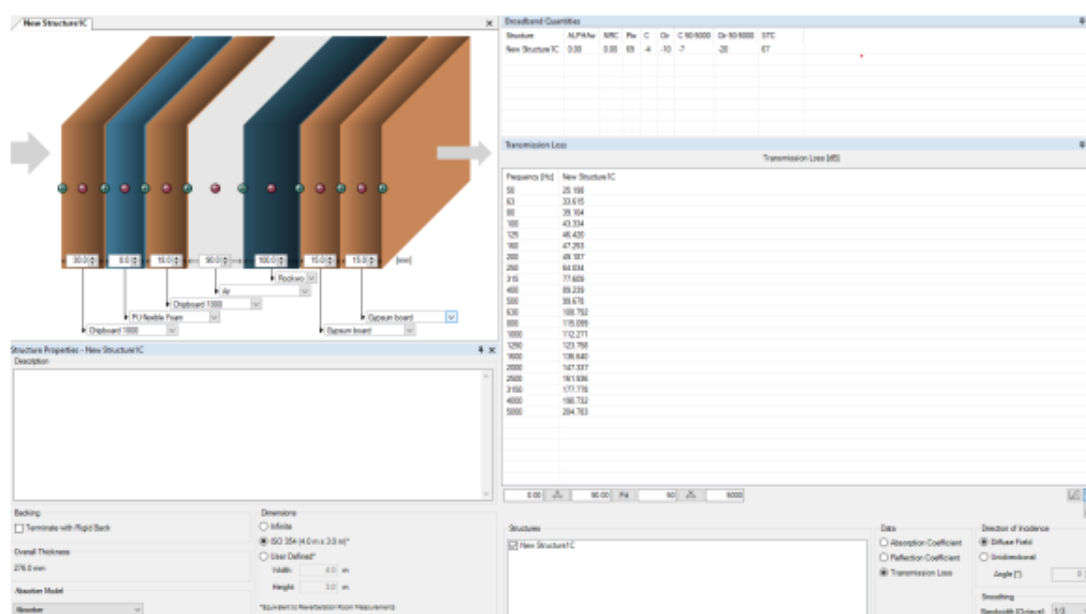
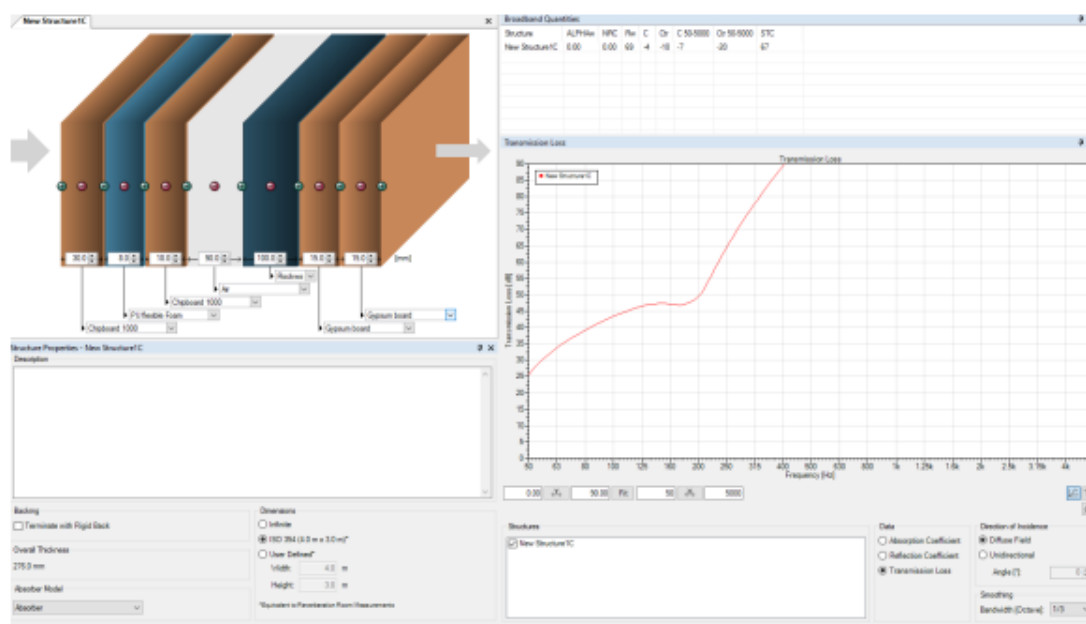


## SPECIFICATION

- 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 must 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 proposed products will meet the council guideline of noise impact on the adjacent buildings.