

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

### 1.0 Introduction

This report accompanies a full planning application for Change of use of 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, scaping 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.

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

**Table 2** confirms the Council's minimum sound insulation requirements

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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>		
Walls	50	-
Floors and stairs	50	57
<b>Dwelling-houses and flats</b>		
<b>Formed by material change of use</b>		
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



## 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 PS chipboard	22mm PS 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> kg/ sheet	7.45	13.40	16.20
		10.74	19.29	23.32

#### ADDITIONAL INFO



#### RESOURCES

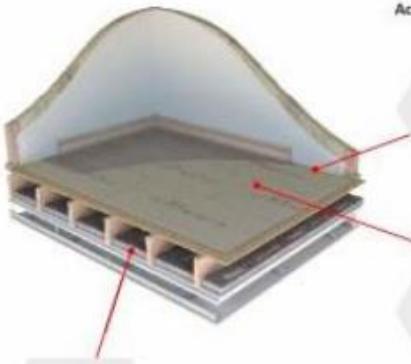
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## PRODUCT APPLICATION INFORMATION



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



### YELLOfol® FS30

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

### BRICKfon® 17T Acoustic overlay board

### BRICKfon® 26T Acoustic overlay board

### BRICKfon® 30T Acoustic overlay board

### PRIMEfol® 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.celllecta.co.uk](http://www.celllecta.co.uk) and view the online video or download the Celllecta app to your smart phone.

- Remove the existing timber sub deck
- Install PRIMEfol® Micro 50 between the joists
- Re-install or replace the timber sub-deck
- Install BRICKfon® 17T/26T/30T on the sub deck
- Install YELLOfol® FS30 around floor perimeter to prevent acoustic flanking

## TYPICAL ACOUSTIC PERFORMANCE

### BRICKfon® 26T



### BRICKfon® 17T



### BRICKfon® 30T



## TECHNICAL ADVICE & SUPPORT

CELLLECTA 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

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## Separating floor - Timber (existing)

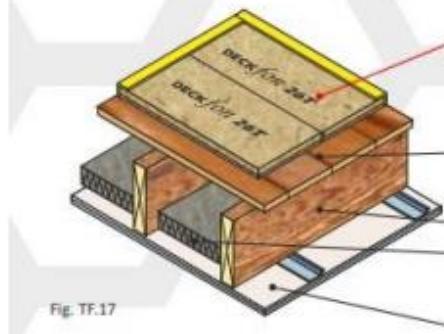


Fig. TF.17

## PCT solution

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

**CELECTA DECKfon® 17T**  
**CELECTA DECKfon® 26T**  
**CELECTA 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 sealant)
- Joists Solid timber joists
- Absorbing material • 50mm **CELECTA FIBREfon® Micro 50**
- Ceiling • 100mm (min) mineral wool insulation (45kg/m<sup>3</sup>) between joists  
See Table TF.17 for ceiling treatment

**FASTRACK CAD**  
ARCHITECTURAL CAD SOFTWARE

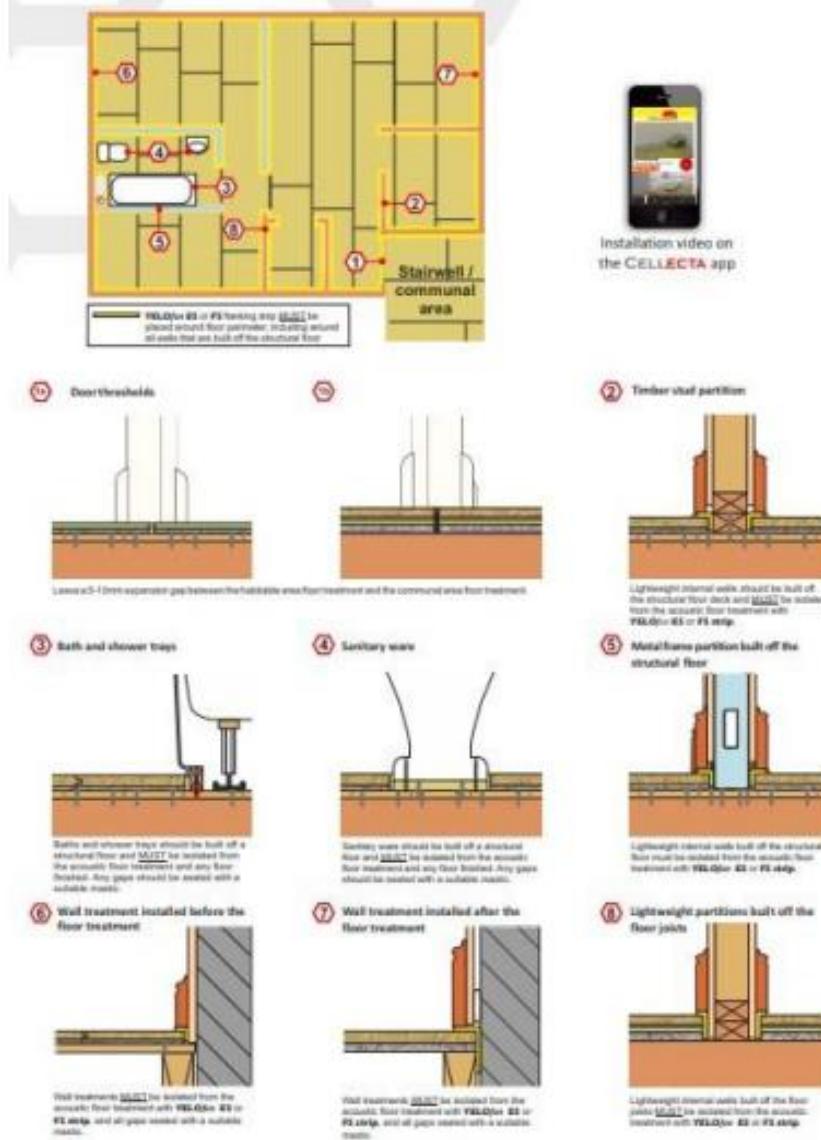
**055Plus**

Table TF.17

Installation options		Ceiling treatment options	
Resilient overlay shallow platform floor system	<b>DECKfon® 17T</b> Composite acoustic overlay board	Airborne 51dB D <sub>100</sub> + C <sub>100</sub> Impact 56dB L <sub>16</sub>	Ceiling boards must not penetrate or touch joists joists (pre) must resilient (as measured at right angles to the joist at 400mm centres).
Product information: Board dimensions: 17mm x 600mm x 2400mm Edge profile: Tongue and groove (MDF) Weight: 7.45kg/m <sup>2</sup> / 32.2kg per board	<b>YELDfon® ESS/60</b> perimeter floating strip Dimensions: 2200mm x 60mm x 30mm	<b>DECKfon® 26T</b> Composite acoustic overlay board	Ceiling treatment Two layers of gypsum-based board, comprised of 25mm (overall 12.5kg/m <sup>2</sup> ) board with 25mm airgap and a second layer of 25mm (overall 12.5kg/m <sup>2</sup> ) board with 40mm airgap, with all joints staggered.
Product information: Board dimensions: 25mm x 600mm x 2400mm Edge profile: Tongue and groove (PVC chipboard) Weight: 13.45kg/m <sup>2</sup> / 59.25kg per board	<b>YELDfon® FS30</b> pre-formed perimeter floating strip Dimensions: 2200mm x 30mm x 30mm	<b>DECKfon® 30T</b> Composite acoustic overlay board	Construction notes Materials must be installed in accordance with manufacturers' instructions to achieve stated acoustic values. Wall treatments <b>TF.17</b> be isolated from the floating floor with <b>YELDfon</b> floating strip. This treatment must not come into contact with the floor treatment. Once laid, 17T boards should be covered with the final floor as soon as possible to eliminate the risk of mechanical damage to the edge detail.
Product information: Board dimensions: 30mm x 600mm x 2400mm Edge profile: Tongue and groove (PVC chipboard) Weight: 23.8kg/m <sup>2</sup> / 22.7kg per board	<b>YELDfon® FS30</b> pre-formed perimeter floating strip Dimensions: 2200mm x 30mm x 30mm		Optional "DECO" nail 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.



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

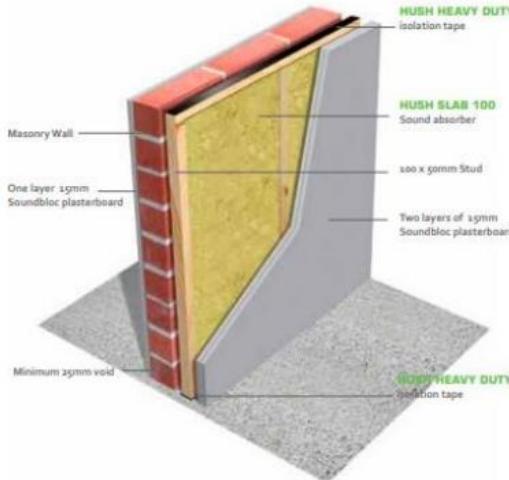
1.0 Ceiling Construction: 2x 15mm thick 'SoundBlock' on resilient rails.

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.

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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.

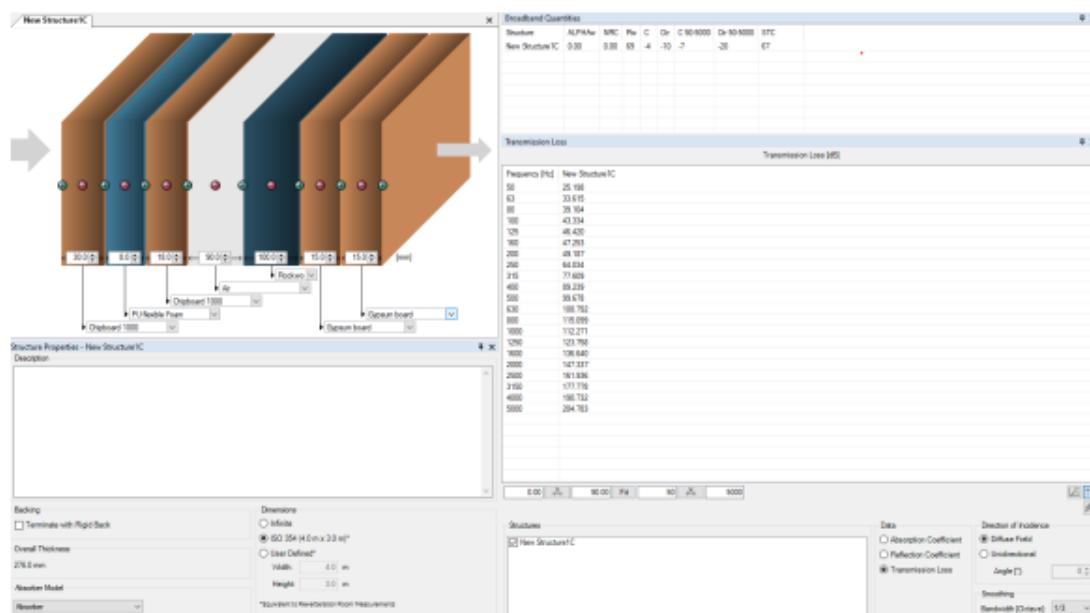
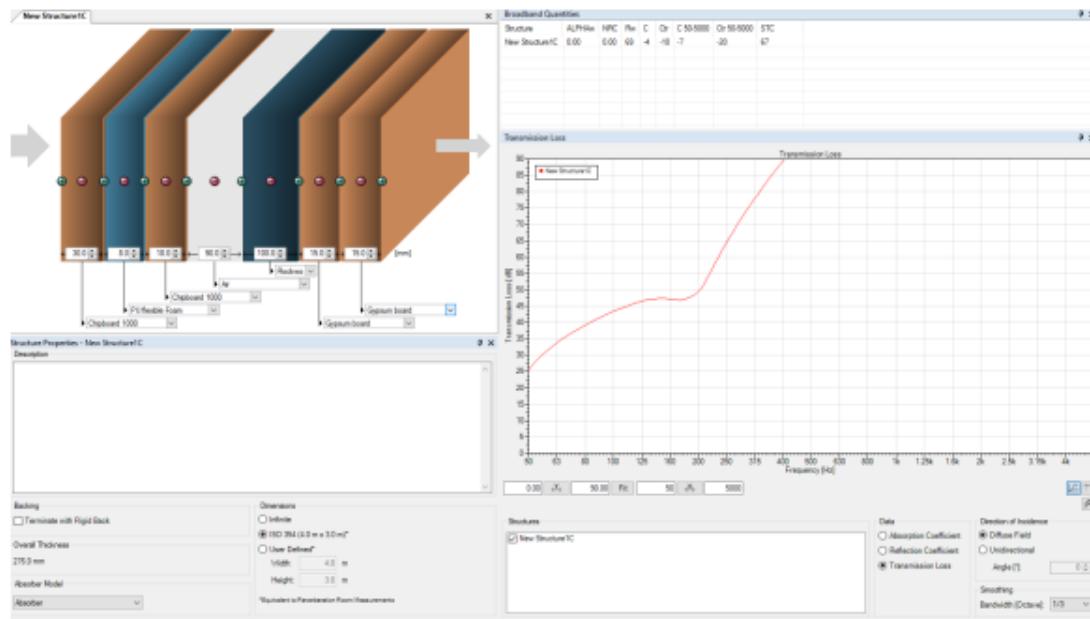


## SPECIFICATION

- 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:



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## 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.