



## Hann Tucker Associates

Consultants in Acoustics Noise & Vibration  
Duke House 1-2 Duke Street Woking Surrey GU21 5BA  
(t) +44 (0) 1483 770595  
(e) enquiries@hanntucker.co.uk  
(w) hanntucker.co.uk

### PROJECT TECHNICAL MEMORANDUM

**JOB TITLE** : Westminster House, Richmond,  
TW9 2ND  
**REF** : HT: 31059/PTM1  
**DATE** : 2 September 2024  
**FROM** : Kyungmin Kim  
**ISSUED TO** : Baden Properties Ltd

### RE: WESTMINSTER HOUSE, RICHMOND TW9 2ND PLANNING CONDITION U0182938

#### 1.0 Introduction

We understand that London Borough of Richmond Upon Thames have stipulated the following planning condition (U0182938) relating to internal sound insulation between the existing Class E floor space and the proposed residential dwellings.

*“Full particulars and details of a scheme for sound insulation between existing Use Class E floorspace and proposed residential units above hereby approved shall be submitted to and approved in writing by the Local Planning Authority prior to superstructure works commencing on site. The sound insulation shall be carried out strictly with the details so approved, shall be implemented prior to first occupation of the residential units to which they relate, shall be maintained thereafter and no change therefrom shall take place without the prior written consent of the Local Planning Authority.*

*REASON: To protect the amenity of future occupiers and of residents of nearby properties.”*

Hann Tucker have therefore been commissioned to undertake a desktop exercise to assess the suitability of the proposed separating floor construction between existing Class E floorspace and proposed residential units above.

Our findings are presented herein.



## 2.0 Relevant Standards & Guidelines

### 2.1 Building Regulation ADE Requirement E1

The normal way of satisfying Requirement E1 is to build separating walls, separating floors and stairs that have a separating function, together with the associated flanking construction, in such a way that they achieve the sound insulation values shown in the following table.

<b>Table 1a: Dwellings – performance standards for separating floors, and stairs that have a separating function.</b>		
	<b>Airborne Sound Insulation D<sub>nT,w</sub> + C<sub>tr</sub> dB (Minimum Values)</b>	<b>Impact Sound Insulation L'<sub>nT,w</sub> dB (Maximum Values)</b>
<b>Dwellings formed by material change of use</b>		
Walls	43	
Floors and stairs	43	64

### 2.2 London Borough of Richmond Upon Thames

The site lies within the jurisdiction of London Boroughs of Richmond Upon Thames (LBRT from herein). For sound insulation between commercial and residential development, LBTH provides following advice within Section 8.0 of their Supplementary Planning Document ‘*Development Control for Noise Generating and Noise Sensitive Development*’.

“The requirements of the Building Regulations are usually deemed to be adequate for the control of sound insulation between dwellings. However, the requirements of the Building Regulations can be inadequate where certain types of commercial use adjoin residential use. The level of sound insulation performance required will be dependent upon the use type, for example a higher level of airborne sound insulation performance will typically be required for a proposed commercial catering unit located below a residential flat than will be required for a small café. A high level of airborne and impact sound insulation, often only achievable by complex design methods that structurally isolate the noise generating and noise sensitive premises, will be required where music and dancing activities adjoin a residential use. Each case will take into account the specific circumstances of the proposed development, however, the examples in Table 5 demonstrate the typically range that may need to be applied dependent on the circumstances (more stringent values may apply in some cases).”



**Table 6: Sound Insulation Examples - Commercial to Residential**

Performance Standards for separating walls, separating floors and stairs that have a separating function		
Commercial to Residential	Airborne Sound Insulation Performance $D_{nT,w} + C_{tr}$ dB	Impact Sound Transmission Performance $L_{nT,w} + C_{tr}$ dB
<b>Walls</b>	48-60	-
<b>Floors and Stairs</b>	48-60	58-53

### 3.0 Sound Insulation Criteria

The existing Class E floorspace is located below the proposed residential dwellings. As such, impact sound transmission is unlikely to be a concern.

While the existing Class E floorspace below is currently vacant, it was previously in an office use. Further, we have been informed it will continue to serve as an office.

Based on the above, and relevant standards and guidelines in Section 2.0, we would recommend a minimum airborne sound insulation criterion of 5dB over the minimum standards of ADE Requirements E1.

Description	Airborne Sound Insulation $D_{nT,w} + C_{tr}$ dB (Minimum Values)
<b>Separating Floors</b> <i>Commercial to Residential</i>	48

It should be noted that above sound insulation criterion only applies with office as intended use of the existing Use Class E floorspace below.

Should the intended use of this space change to accommodate other noise generating commercial activities such as a bar or gym, the above criterion may require further uplift. Additionally, if high—impact activities are proposed, such as those associated with gym facilities, then resilient floor finishes may be required.

Notwithstanding, future tenants of commercial space below proposed residential uses will be required to control noise and vibration transfer from all of their sources (including mechanical services including ductwork breakout, amplified speech/music and activities) to internal areas beyond their demise.



A suitable form of words should be included in the tenant's handbook making tenants responsible for controlling noise to suitable levels. We will supply a draft suitable form of words for inclusion in the tenants handbook regarding acoustics to our client upon request.

#### 4.0 Documents Reviewed

All acoustic analyses reported herein, have been based on the following documents.

Title	Reference	Date
Floor Types - Residential	230000_RevP01	26/03/2024
GA Plan – Proposed – Level 03	050004_RevP03	03/04/2024
GA Plan – Proposed – Level 04	050005_RevP03	03/04/2024

#### 5.0 Review of Separating Construction

##### 5.1 Laboratory vs. On-site Performance

Laboratory sound insulation performance ( $R_w$ ) equates to the performance of an element when constructed in a laboratory and excludes noise transmission from flanking paths. Laboratory ratings allow selection of drywall constructions from manufacturer's literature.

On site sound insulation performance (i.e.,  $D_{nT,w} + C_{tr}$ ) equates to the performance of an element when tested on-site, and includes contribution from all transmission paths.

As such, there will inherently be a reduction in sound insulation performance when comparing a laboratory performance to an on-site sound insulation performance.

Dependent on the sound insulation performance, a reduction of around 8-10 dB is typically expected when comparing laboratory sound insulation performances to on-site performances.

##### 5.2 Proposed Separating Floor

Based on the information provided to us, we understand the proposed separating floor construction between commercial space and residential dwellings directly above comprises as below and synonymous across Level 04.

It should be noted that the ceiling construction inside the commercial space will be determined by future tenants. As such, this has not been considered:



Proposed Floor Construction Type FP-02	
<b>Floor</b>	<ul style="list-style-type: none"><li>• Floor finish zone</li><li>• Electric underfloor heating build-up TBC including insulation, heating mat and self-levelling compound</li><li>• 23mm CMS Danskin Overlay 23 or similar approved acoustic decking</li><li>• 18mm OSB board fixe into LGS joists</li><li>• 203mm Hot rolled steel framing + fully infilled with mineral wool insulation</li></ul>
<b>Slab</b>	Estimated to be minimum 200mm structural aerated concrete slab (nominal density 690 kg/m <sup>3</sup> ) – subject to change upon receipt of onsite confirmation
<b>Ceiling</b>	No Ceiling – Subject to Future Tenants (currently office use)

In the absence of appropriate test data, we have estimated the laboratory airborne sound insulation performance of above proposed floor construction to be capable of providing a laboratory airborne sound insulation performance of approximately 58dB R<sub>w</sub> + C<sub>tr</sub> using INSUL modelling software.

### 5.3 Comments on Separating Floor

Based on the estimated laboratory airborne sound insulation performance of 58dB R<sub>w</sub> + C<sub>tr</sub>, in conjunction with typical reduction in airborne sound insulation performance expected between laboratory and in-situ, the proposed separating floor construction should be capable of achieving the airborne sound insulation criterion set out in Section 3.0 subject to suitable detailing to control flanking transmission and good workmanship.

Yours sincerely

Kyungmin Kim  
for HANN TUCKER ASSOCIATES