



## 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/PTM3-R1  
**DATE** : 4 September 2024  
**FROM** : Kyungmin Kim  
**ISSUED TO** : Baden Properties Ltd

### RE: WESTMINSTER HOUSE, RICHMOND TW9 2ND PLANNING CONDITION U0182937

#### 1.0 Introduction

Hann Tucker Associates Limited (Hann Tucker) was previously commissioned by Baden Properties Ltd to undertake an environmental noise survey and noise impact assessment in order to assess the suitability of the proposed development at Westminster House, Richmond, TW9 2ND for residential and commercial use as part of the planning application – full details of which are within Environmental Noise Survey and Noise Impact Assessment Report ref. 31059/NIA1/Rev3 dated 15 December 2023.

Since submission to the above to the Local Authority, we understand the EHO of London Borough of Richmond Upon Thames (LBRT from herein) have stipulated the following planning condition (U0182937) relating to sound insulation of windows.

*“Façade sound insulation shall be of a standard to achieve noise levels within bedrooms and living rooms of the residential dwellings as recommended in the acoustic submission prepared by Hann Tucker Associates ref. 31059/NIA/Rev3 and dated 15th December 2023. Details of the final glazing fabrication and acoustic specifications shall be submitted to and approved in writing by the Local Planning Authority prior to the commencement of relevant works and shall be installed prior to occupation of the relevant part of the development and be so maintained.*”

*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 provide acoustic performance specifications for external building fabric elements with reference to above planning condition based on the data from our previous environmental noise survey.

Our findings are presented herein.

## 2.0 Internal Noise Criteria

We note that Section 5.2 of LBRT’s Supplementary Planning Document: Noise Generating and Noise Sensitive Development refers to internal ambient noise levels recommended within Table 4 of BS8233:2014 as LPA requirement.

As such, following table outlines the proposed internal noise criteria to be achieved with background ventilation within residential dwellings in accordance with BS8233:2014.

These are considered in-line with the requirements of Planning Condition U0182937.

### Areas dominated by noise without character:

Activity	Location	Desirable Internal Ambient Criteria	
		07:00 – 23:00	23:00 to 07:00
Resting	Living Rooms	35 dB LAeq,16hour	-
Dining	Dining Room/Area	40 dB LAeq,16hour	-
Sleeping (Daytime Resting)	Bedroom	35 dB LAeq,16hour	30 dB LAeq,8hour 45 dB* LAmax

\* Not to be exceeded by more than 10 – 15 times per night-time period

### Areas dominated by noise with character:

We note that Section 6.3 of LBRT’s Supplementary Planning Document: Noise Generating and Noise Sensitive Development also state:

*“In other cases, it may be necessary to seek to achieve better standards in nearby dwellings, for example where the proposed industrial or commercial development may emit noise with a tonal, impulsive or other discrete characteristics the Borough may consider it appropriate to apply a character correction penalty for internal noise standards”*

Therefore, for this assessment, the internal noise criteria have been reduced by 3dB (i.e 3dB more onerous) after the application of the aforementioned penalty, to the following:



Activity	Location	Desirable Internal Ambient Criteria	
		07:00 – 23:00	23:00 to 07:00
Resting	Living Rooms	32 dB $L_{Aeq,16hour}$	-
Dining	Dining Room/Area	37 dB $L_{Aeq,16hour}$	-
Sleeping (Daytime Resting)	Bedroom	32 dB $L_{Aeq,16hour}$	27 dB $L_{Aeq,8hour}$ 42 dB* $L_{Amax}$

\* Not to be exceeded by more than 10 – 15 times per night-time period

It should be noted however, BS8233:2014 does not stipulate any penalties to be applied to internal ambient noise level criteria as shown above.

### 3.0 Documents Reviewed

The following documents have been reviewed to inform our assessment.

Reference	Title	Date
PL0004_RevP00	GA Plan-Proposed-Level 04	03 September 2024
050005_RevP03	GA Plan-Proposed-Level 05	03 April 2024
P22-058_CGL-Z1-00-GA-A-PL0003K_SK020	Proposed Fourth, Fifth and Roof Plans	06 June 2022
P22-058_CGL-Z1-00-GA-A-PL0004 RevE	Proposed West & South Elevations	06 June 2022
P22-058_CGL-Z1-00-GA-A-PL0005 RevA	Proposed East & North Elevations	06 June 2022
P22-058_CGL-Z1-00-GA-A-PL0006 RevA	Proposed Sections	06 June 2022
060100_RevP03	Building Section AA	28 March 2024
060101_RevP01	Building Section BB	02 April 2024
060102_RevP02	Building Section CC	02 April 2024
060110_RevP01	Facade Section 01	11 April 2024



## 4.0 Environmental Noise Surveys

An environmental noise survey of the site has previously been undertaken by Hann Tucker Associates as part of the planning stage input on the scheme.

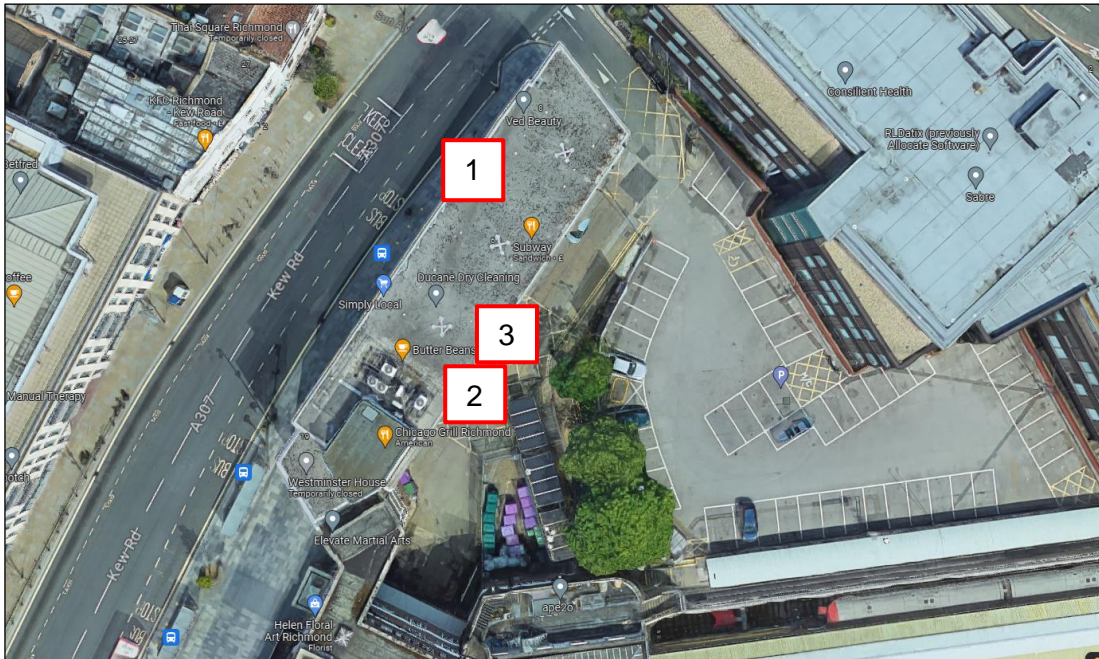
The full methodology and results of our environmental noise survey are presented in our Environmental Noise Survey and Noise Impact Assessment report ref. 31059/NIA1/Rev3 dated 15 December 2023.

For ease of reference the noise survey table and positions from our previous survey are presented :

Position	Day/Period	Measured Noise Levels (dB)				
		Daytime (07:00 – 23:00 hrs)		Night-time (23:00 – 07:00 hrs)		
		L <sub>Aeq,16hr</sub>	L <sub>A90</sub>	L <sub>Aeq,8hr</sub>	L <sub>A90</sub>	L <sub>Amax, 2min</sub>
1	Friday 20 October 2023	71	61	65	58	86
	Saturday 21 October 2023	70	61	67	46	85
	Sunday 22 October 2023	69	59	65	55	86
	Monday 23 October 2023	70	60	66	45	84
	Tuesday 24 October 2023	71	61	-	-	-
2	Friday 20 October 2023	66	63	62	53	71
	Saturday 21 October 2023	65	64	62	57	73
	Sunday 22 October 2023	65	62	60	51	73
	Monday 23 October 2023	65	62	61	53	71
	Tuesday 24 October 2023	64	58	-	-	-
3	Friday 27 October 2023	64	57	60	56	79
	Saturday 28 October 2023	61	58	60	57	78
	Sunday 29 October 2023	63	58	58	49	76
	Monday 30 October 2023	64	58	56	48	70
	Tuesday 31 October 2023	66	-	-	-	-



Corresponding measurement positions are shown on the plan below.



Plan Showing Measurement Positions (Google © Map data © 2023)

Due to the nature of the survey, i.e. unattended, it is not possible to accurately describe the dominant noise sources, or specific noise events throughout the entire survey period. However, at the beginning and end of the survey period the noise climate was noted to be dominated by road traffic and air traffic at the front of the building (Position 1) and by cars in the car park, construction noise, train noise, and air traffic noise at the rear of the building (Position 2 and Position 3)

Based on the above, dominant prevailing noise sources constitute environmental noise sources (road/air/rail traffic), thus is unlikely to contain distinct acoustic characteristics. In order to be robust, however, internal noise criteria associated with areas dominated by noise with character (i.e., 3dB uplift) has been applied to the assessment for the possible presence of intermittency characteristics that are neither tonal nor impulsive, though otherwise are readily distinctive against the residual acoustic environment.



## 5.0 Proposed Building Envelope Overview

Our assessment of external noise intrusion considers noise limits associated with areas dominated by noise with character set out in Section 2.0, and following proposed external building fabric constructions:

<b>Roof:</b>	SikaPlan SGmA membrane, 150mm SikaTherm insulation, VCL, 15mm Board product TBC on 38mm Profile Steel Deck on 203mm SFS with insulation, 2no. 15mm Wallboard or similar with BG MF ceiling system with 2no. 15mm Wallboard to ceiling.
<b>External walls:</b>	SFS with rainscreen cladding/brick-slip <u>or</u> curtain walling
<b>Windows:</b>	Punched windows <u>or</u> curtain walling.
<b>Ventilation:</b>	Mechanical Ventilation with heat recovery.

We have been informed that the ventilation strategy proposed for dwellings will be mechanical ventilation with heat recovery (MVHR) which can provide purge ventilation.

It should be noted that the internal noise level guidelines are not applicable under “purge ventilation” conditions as defined by Part F, as this should only occur occasionally (e.g. to remove odour from painting and decorating or from burnt food).

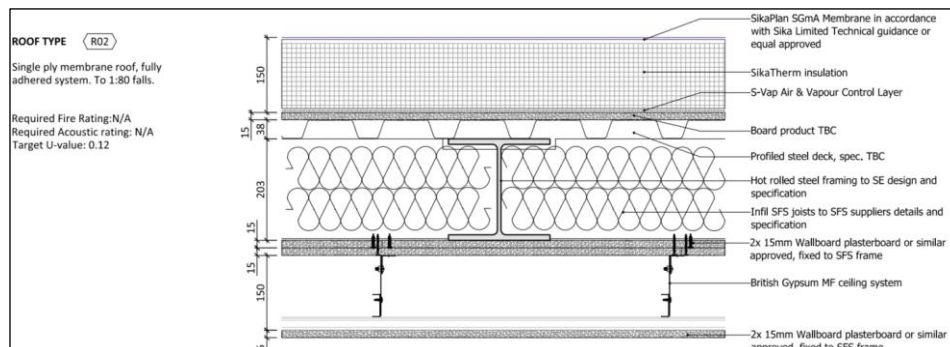
## 5.1 Acoustic Specification and Guidance

Provision exists to provide appropriate sound insulation solutions as required including, where necessary, suitably specified glazing. We have carried out preliminary calculations to determine the likely façade sound insulation performance requirements for the worst affected facade.

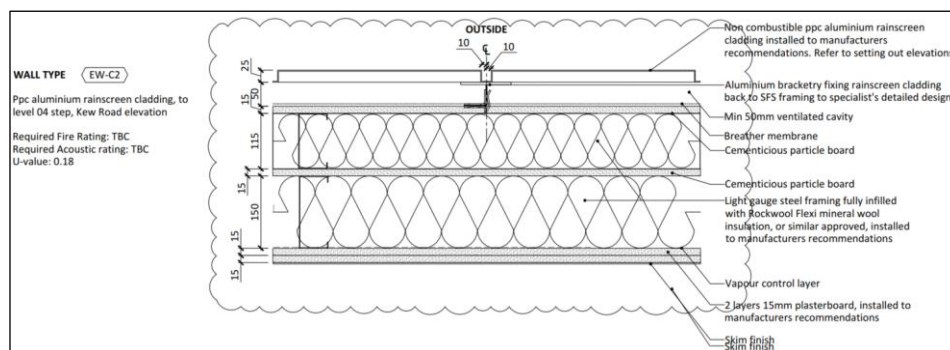
Our calculation methods follow those outlined in BS 8233:2014 Section G.2 and are based on the following assumptions:



- Proposed roof build-up as below, estimated to have a laboratory sound insulation performance of 48 dB  $R_w + C_{tr}$ .



- External wall build-up as below, estimated to have a laboratory sound insulation performance of 44 dB  $R_w + C_{tr}$ .



#### Worst-case Bedroom Facing Kew Road (Front)

- 5<sup>th</sup> Floor Bedroom facing Kew Road (Plot 3)
- 34m<sup>3</sup> approximate room volume.
- 12.5m<sup>2</sup> approximate glazed element wall area.
- No trickle vent – Mechanical ventilation with heat recovery
- Typical furnishings including beds, sofas, chairs etc.
- Reverberation time of 0.5 seconds.
- To fall under areas not dominated by noise with character (see Section 2.0)

#### Worst-case Bedroom Facing Richmond Station Carpark (Rear)

- 5<sup>th</sup> Floor Bedroom facing Richmond Station Carpark (Plot 3)
- 34m<sup>3</sup> approximate room volume.
- 12.5m<sup>2</sup> approximate glazed element wall area.
- No trickle vent – Mechanical ventilation with heat recovery
- Typical furnishings including beds, sofas, chairs etc.
- Reverberation time of 0.5 seconds.
- To fall under areas dominated by noise with character during daytime only (see Section 2.0)



From the results of the assessment, the minimum acoustic performance specifications are recommended in the tables below. These are intended for planning use only, and detailed design stage octave band acoustic specifications will need to be developed for tender and reviewed by acoustic consultant.

### Glazing/Cladding

Façade/Zone	Example Configuration ( <i>glass / airspace / glass</i> )	Minimum Sound Reduction Index (dB) at Octave Band Centre Frequency (Hz)						Overall (dB) $R_w + C_{tr}$ ( <i>Guidance only</i> )
		125	250	500	1k	2k	4k	
Front Facing Facades	12.8mm Acoustic Laminate / 20mm / 16.8 Acoustic Laminate	33	40	43	46	50	56	43
Rear Facing Facades	12.8mm A / 16mm / 16.8mm A	27	36	41	49	54	60	39

Whilst the above configurations can typically be expected to provide the required levels of sound insulation, ultimately it is critical for glazing suppliers to demonstrate compliance with the performances detailed above rather than simply offering a generic glazing configuration. In all cases, it is essential that the system is tested in accordance with BS EN ISO 10140-2 and that the quoted minimum sound reduction specifications are met by the system as a whole (not just the glass).

Where structural glass or non-vision spandrel panels are proposed, they should provide a sound reduction performance at least equal to that required of the walls to maintain the acoustic integrity of the building envelope.

## 5.2 External Doors

Where external doors are proposed, they should provide a sound reduction performance at least equal to that required of the glass maintain the acoustic integrity of the building envelope

Yours sincerely

Kyungmin Kim  
for HANN TUCKER ASSOCIATES