

Acoustic Design Response to Environmental Health Comments

Application: AWDM/0103/26

Site: 39 Brighton Road, Worthing, West Sussex BN11 3EF

1. Introduction

This document has been prepared in response to comments from the Environmental Health Officer (dated 16 April 2026) regarding:

- Sound insulation between the commercial and residential uses
- Protection of residential units from external noise
- Ventilation strategy and overheating considerations

This response should be read alongside:

- Acoustic Assessment (Ref: J4089, dated 01/05/2026)
- Drawing 3094.04B – Proposed Elevations and Sectional Elevation
- Drawing 3094.03B – Proposed Floor Plans

2. Sound Insulation – Commercial to Residential HMO A

The Environmental Health Officer has confirmed that the proposed sound insulation scheme between the ground floor commercial unit and first floor residential accommodation is satisfactory in principle.

The submitted acoustic report specifies:

- A metal furring (MF) ceiling system with acoustic lining
- Installation on anti-vibration hangers
- Mineral wool insulation within ceiling voids

This construction is designed to achieve:

- Minimum airborne sound insulation of $\geq 50\text{dB}$ ($\text{DnT,w} + \text{Ctr}$)

The applicant confirms that:

- The proposed construction will be implemented in accordance with the acoustic report
- Post-completion testing will be undertaken to demonstrate compliance

3. External Noise – Acoustic Design Strategy

The submitted acoustic report identifies:

- Front façade noise levels of approximately 66dB LAeq (day) and 61dB LAeq (night)
- Lower noise levels at the rear façade

Based on this, the building has been designed to achieve internal noise standards in accordance with:

- BS8233:2014
- ProPG: Planning & Noise (2017)

The required façade sound insulation has been established and incorporated into the design.

4. Glazing Strategy

To mitigate external noise:

- Front façade habitable rooms will be fitted with high-performance acoustic glazing
 - Target performance: $\geq 33\text{dB } R_w + C_{tr}$
 - This exceeds the required sound reduction identified in the acoustic report
- Rear façade glazing will comprise standard double glazing where appropriate

The use of vacuum glazing is considered appropriate as it:

- Achieves the required acoustic performance
- Maintains a slim profile suitable for the conservation area

5. Ventilation Strategy

In response to Environmental Health comments, the applicant confirms that **The scheme is based on a ducted Mechanical Ventilation with Heat Recovery (MVHR) system**

This approach:

- Eliminates the need for **trickle vents on noise-sensitive façades**
- Allows windows to remain closed to maintain acoustic performance
- Provides continuous background ventilation in accordance with Building Regulations

External intake and extract terminals:

- Will be located to the **rear elevation**, as indicated on Drawing 3094.04B

- Will be designed to minimise visual and acoustic impact

The scheme also incorporates a **hot water cylinder with integrated heat pump (ambient air source)**, located internally. This operates independently of the MVHR system and does not require external condenser units.

The overall approach adopts an **all-electric, low-carbon system**, avoiding the need for gas infrastructure while supporting energy efficiency objectives.

Detailed duct routing and final plant specification will be developed at Building Regulations stage.

6. Overheating Strategy

The development has been designed to balance acoustic performance with thermal comfort.

Due to external noise levels at the front façade, it is not appropriate to rely on fully open windows for cooling. The strategy therefore adopts a ventilation-led approach based on a ducted MVHR system.

Modern MVHR systems (such as Vent-Axia Sentinel Kinetic or equivalent) incorporate summer bypass and purge functionality, enabling cooler external air to be introduced during favourable conditions while avoiding heat recovery. This allows the system to operate at increased ventilation rates, particularly during night-time periods, assisting in the removal of internal heat gains and the gradual cooling of the building fabric.

The approach provides continuous background ventilation and supports thermal comfort without reliance on open windows on noise-sensitive elevations. Window opening will be used in a controlled manner where appropriate.

Detailed overheating assessment and final system specification will be developed at Building Regulations stage, if required.

7. Ventilation Noise and Plant Noise & Vibration

All ventilation and associated plant, including MVHR and the internal heat pump cylinder, will be specified to ensure:

- Internal noise levels comply with **BS8233:2014**
- Ductwork and plant are installed with **anti-vibration mounts**
- Appropriate acoustic attenuation is incorporated where required

8. Summary

The proposed development:

- Adopts a good acoustic design approach in accordance with ProPG
- Achieves internal noise standards set out in BS8233
- Provides a ventilation strategy that addresses both acoustic and overheating requirements
- Includes a sound insulation scheme that meets Environmental Health requirements

The applicant therefore considers that the Environmental Health matters have been fully addressed within the submitted design.