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Noise Exposure Assessment & Mitigation Plan for 121 – 131 Bell Lane, Bury.

PROPOSED CONVERSION OF EXISTING BUILDING FIRST FLOOR AND PART GROUND FLOOR TO CREATE 9No FLATS, 7No ONE BEDROOM FLATS & 2No TWO BEDROOM FLATS INCLUDING OPENING UP EXISTING EXTERNAL OPENINGS AND THE CREATION OF NEW WINDOW AND DOOR OPENINGS ON THE GROUND AND FIRST FLOOR & RETENTION OF EXISTING RETAIL USE ON THE GROUND FLOOR.

Noise Exposure Assessment for Residential Conversion at 121 - 131 Bell Lane, Bury

1. Introduction

This Noise Exposure Assessment evaluates the potential noise impact associated with the proposed conversion of part of the ground floor into residential flats and the full first floor into residential accommodation above an existing retail unit at 121 - 131 Bell Lane, Bury. Given the site's location on a main road with adjacent commercial activities, appropriate noise mitigation measures are necessary to ensure compliance with relevant acoustic standards and provide acceptable internal living conditions.

2. Noise Sources and Potential Impacts

The primary noise sources affecting the proposed residential units include:

- **Traffic Noise:** Bell Lane is a main road with consistent vehicular traffic, including cars, buses, and HGVs, generating external noise levels of approximately **65-75 dB(A) during peak hours**.
- **Retail Unit Below First-Floor Flats:** Noise transmission from the ground-floor commercial unit may include general operational noise, customer footfall, and potential mechanical or refrigeration equipment.
- **Adjacent Businesses:** Nearby commercial and retail businesses may contribute to background noise levels.

Without mitigation, these noise sources could exceed **BS8233:2014** recommended internal noise levels of:

- **35 dB(A) during the daytime (07:00 – 23:00)**
- **30 dB(A) during the night-time (23:00 – 07:00)**

To meet these standards, a range of noise attenuation measures will be implemented.

3. Noise Mitigation Measures

3.1. Glazing and Ventilation

To address external noise from Bell Lane and surrounding commercial activities, **high-performance acoustic double glazing** will be installed on all residential windows facing the road and adjacent businesses.

- **Recommended Glazing Specification:**
 - **6mm glass / 16mm air gap / 6mm glass** configuration
 - Achieves a **sound reduction index of 35-40 dB(A)**
 - Ensures compliance with **BS8233:2014** and **WHO Guidelines for Community Noise**

To maintain adequate ventilation while reducing noise ingress, **acoustic trickle vents** will be installed in window frames, ensuring effective airflow without compromising acoustic performance.

3.2. Floor and Ceiling Acoustic Insulation

To mitigate noise transmission between the retail unit and first-floor flats, as well as between stacked residential units, **industry-standard impact and airborne noise reduction measures** will be incorporated.

- **Separating Floor (Retail to First-Floor Flats)**
 - **100mm acoustic mineral wool insulation (min. density 60kg/m³) between joists**
 - **Resilient bars fixed to the underside of joists**
 - **Two layers of 15mm high-density acoustic plasterboard**
 - **Floating screed or acoustic matting on first-floor surface**
 - Expected noise reduction: **55-60 dB(A) airborne sound insulation**

- **Separating Floor (Flat over Flat)**
 - **Acoustic resilient layer between floor finish and subfloor**
 - **Impact noise insulation underlays to reduce footfall noise**
 - **Double-layered ceilings with staggered joints**

These measures will ensure compliance with **Approved Document E (Building Regulations) for Sound Insulation**.

3.3. Internal Wall Soundproofing

To limit noise transfer between flats and from external sources, the following enhancements will be made to internal walls:

- **100mm acoustic insulation within stud partitions**
- **Two layers of high-density acoustic plasterboard on both sides**
- **Resilient bars where necessary to decouple the structure**

These measures will achieve at least **45 dB(A) airborne sound insulation** between rooms, in line with **Building Regulations (Part E)**.

4. Summary and Conclusion

This Noise Exposure Assessment demonstrates that, with the proposed mitigation measures, the converted residential flats at 121 - 131 Bell Lane will achieve compliance with relevant noise insulation standards, including:

- **BS8233:2014 – Sound Insulation and Noise Reduction for Buildings**
- **WHO Guidelines for Community Noise**
- **Approved Document E (Building Regulations)**

The installation of **acoustic double glazing, soundproofed floors and ceilings, enhanced internal walls, and acoustic ventilation** will ensure that noise levels within the flats remain within acceptable limits, providing a comfortable living environment despite the site's location on a main road with adjacent commercial activity.

These mitigation measures will be implemented as part of the development to create high-quality residential accommodation that meets modern noise reduction standards.