

109 Walmersley Road, Bury

Technical Note – Acoustic Design Advice

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1.0 Introduction

- 1.1 Acoustic and Engineering Consultants Ltd (AEC) has been appointed by Red Ink Property Limited to review the proposed lining to be installed on the separating wall between 109 and 107 Walmersley Road, Bury, to discharge Planning Condition 3.
- 1.2 Planning Condition 3, which was placed on the scheme by Bury Council, has been reproduced below.

“Please provide an acoustic and/or technical report to demonstrate the details of the sound insulation of the party wall(s) shared with no. 107 Walmersley Road, shall be improved in accordance with Building Regulations Approved Document E (or similar method).”
- 1.3 In order to comply with Approved Document E (ADE) ‘Resistance to the passage of sound’ 2003 edition (incorporating 2015 amendments) of the 2010 Building Regulations, the separating wall between a dwelling formed by material change of use and an adjacency needs to achieve a minimum airborne sound insulation performance of $43\text{dB}D_{nT,w} + C_{tr}$.
- 1.4 Acoustic terminology is discussed in brief in Appendix A.

2.0 Design Proposal

- 2.1 The existing separating wall construction between 109 and 107 Walmersley Road is unknown. However, AEC has been informed by the Client that the separating wall is at formed from at least two layers of brick (standard 102.5mm wide each) i.e. at least 205mm wide in total. This would be reasonable based on the age of the building.
- 2.2 Calculations indicate that this build-up could achieve an airborne sound insulation performance of around $43\text{dB}D_{nT,w} + C_{tr}$, however, based on AEC’s experience it could be a marginal experience.
- 2.3 It is understood Red Ink Property Limited propose to install an independent lining, consisting of a single layer of 12.5mm thick British Gypsum SoundBloc on the 109 Walmersley Road side of the wall. The plasterboard will be supported off an independent timber stud frame at least 15mm from the separating wall. The cavity formed will be partially filled with 50mm thick mineral wool insulation evenly distributed. Total cavity formed at least 65mm.
- 2.4 A calculation using Insul, a proprietary tool used for determining the sound insulation performance of a partition using test data and calculation methodology, indicates that the wall would achieve approximately of $50\text{dB}D_{nT,w} + C_{tr}$.
- 2.5 This would comply with the minimum requirements of ADE.

APPENDIX A – Acoustic Terminology in Brief

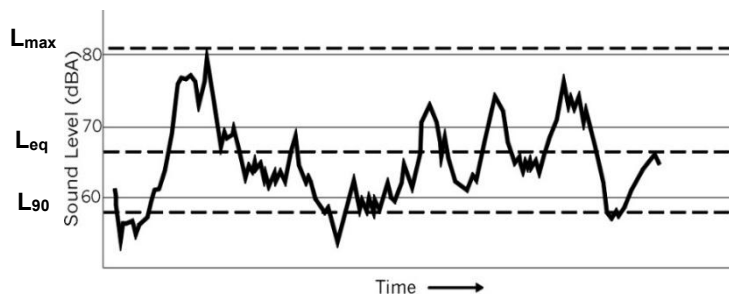
General

Sound is produced by mechanical vibration of a surface, which sets up rapid pressure fluctuations in the surrounding air. The rate at which the pressure fluctuations occur determines the pitch or *frequency* of the sound. The frequency is expressed in Hertz (*Hz*), that is, cycles per second. The human ear is sensitive to sounds from about 20 Hertz to 20,000 Hertz. Although sound can be of one discrete frequency - a 'pure tone' - most noise is made up of many different frequencies.

The human ear is more sensitive to some frequencies than others, and modern instruments can measure sound in the same subjective way. This is the basis of the A-weighted sound pressure level *dBA*, normally used to assess the effect of noise on people. The *dBA* weighting emphasizes or reduces the importance of certain frequencies within the audible range

Sound / Noise Units

The figure below shows an example of sound level varying with time. Because of this variation over time the same period of noise can be described by several different levels. The most common of these are described below.



Commonly Used Descriptors for Sound / Noise

$D_{nT,w}$	Weighted standardized level difference. A single number rating used to describe the on-site airborne sound insulation performance properties of a material or building element over a range of frequencies, typically 100-3150Hz. Standardized to a reference reverberation time of 0.5s (unless otherwise stated).
C_{tr}	A road traffic spectrum adaptation term which is used to describe the low frequency sound insulation performance of building elements.