Cole Jarman

Memorandum

To:	**Mike Russum**
From:	**Matthew Heyes**
Project:	**69 Highgate High Street**
Subject:	**Sound Insulation**
Reference:	**15/0708/M01-0**
Date:	**25 February 2016**

1 Introduction

1.1 It is proposed to construct a new four storey development comprised of mixed residential and commercial/retail usage at 69 Highgate High Street, London, N6 6DA.

1.2 This memo provides details of the requirements of Approved Document E along with how they can be achieved on site.

2 Design Standards - Acoustic Separation

2.1 **Building Regulations 2010 and Approved Document E**

2.1.1 In relation to the protection of a property from the transfer of sound to it from another demise that either adjoins, or part of the same building, the Building Regulations 2010 contains the following requirement:

"Protection against sound from other parts of the building and adjoining buildings

E1. Dwelling-houses, flats and rooms for residential purposes shall be designed and constructed in such a way that they provide reasonable resistance to sound from other parts of the same building and from adjoining buildings."

2.1.2 'Approved Document E – Resistance to the Passage of Sound' gives advice as to how this requirement should be achieved. In it, the following is stated:

"0.1 In the Secretary of State's view the normal way of satisfying Requirement E1 will be 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 for dwelling - houses and flats set out in Table 1a, and the values for rooms for residential purposes (see definition in Regulation 2) set out in Table 1b. For walls that separate rooms for residential

purposes from adjoining dwelling—houses and flats, the performance standards given in Table 1a should be achieved"

2.1.3 The relevant values given in Table 1a to which the above text refers for 'Dwelling – houses and flats are as follows:

- Airborne sound insulation of separating walls between dwellings, and between dwellings and any other part of the building: **$D_{nT,w}$ + Ctr 45dB**
- Airborne sound insulation of separating floors between dwellings, and between dwellings and any other part of the building: **$D_{nT,w}$ + Ctr 45dB**
- Impact sound insulation of floors separating any part of the building from a residential dwellings below: **$L'_{nT,w}$ 62dB**

2.1.4 Approved Document E also states that internal walls and floors within a development should provide a laboratory sound insulation performance as outlined below. The internal walls and floor performances do not need to be verified by testing on site.

- Airborne sound insulation of internal walls: **R_w 40dB**
- Airborne sound insulation of internal floors: **R_w 40dB**

2.1.5 Doors separating dwellings from corridors must have good perimeter sealing and either have a mass per unit area of 25kg/m^2 or achieve a minimum sound reduction index of **R_w 29dB**.

2.1.6 There are no statutory requirements related to sound insulation between commercial premises and residential accommodation beyond that stated in Approved Document E (ADE) of the Building Regulations.

2.1.7 It is understood that the commercial element will be used for standard retail use and that no music will be played within its demise. Due to this achieving the requirements of Approved Document E is expected to provide a suitable level of protection to the residences. If the ground floor usage is expected to generate more noise then it will be necessary to reconsider the required level of sound insulation.

3 Acoustic Separation

3.1 There are currently no new party walls being constructed on site. Example party floor constructions are provided below, these are based on the current proposals and improved, where necessary, in order to achieve the requirements of Approved Document E.

Floor between Lower Ground and Ground

200mm (min) in-situ concrete floor slab (min density 2400kg/m^3) with 50mm screed above floating on resilient layer with a minimum ΔLw of 29 dB.

Floor between Ground and 1st Floor

Concrete on a profiled metal deck with a maximum depth of 170mm and a minimum depth of 90mm (min density 2400kg/m3). A ceiling will be required within the retail unit comprising two layers of 10kg/m2 gypsum based board on an MF grid providing a minimum void of 150mm with 50mm mineral wool within the cavity.

3.2 The suspended ceiling must be installed before use of the commercial elements commences.

3.2 **Flanking**

3.2.1 To avoid sound flanking around the partitions and floors, suitable flanking details will need to be developed in due course. Therefore, once further information is available as to construction types, these will be developed.

3.3 **Internal Walls**

3.3.1 Internal walls must achieve a lab performance of R_w 40dB. One construction which can achieve this is provided below:

2x 12.5mm standard board either side of a single 50mm C Stud at 600mm.

3.4 **Reverberation Control in Common Areas**

3.4.1 Approved Document E requires that suitable provision is made to control reverberation in the common internal parts of buildings containing flats or rooms for residential purposes. The relevant common areas can be defined as entrance halls, corridors and hallways that give access to flats and rooms for residential purposes. Stairwells only need treatment if they open directly to one of these relevant areas.

3.4.2 Section 7 of ADE describes two methods by which the amount and specification of the absorptive treatment can be determined. It is proposed to meet the requirements of ADE using Method A as detailed below:

Method A

This method requires that entrance halls, corridors and hallways are covered with an area equal to or greater than the floor area with a Class C absorber or better. Generally the easiest means of achieving this is to locate the treatment on the ceiling but in conversion developments where high level architectural detailing is being sought to be retained then wall treatment may need to be considered.

For stairwells or a stair enclosure, the calculated combined area of the stair treads and the surface of intermediate landings (excluding ground floor) and the ceiling area on the top floor provide the required area of treatment for a Class D absorber. If a Class C absorber is used only 50% of this area needs to be treated.

The treatment can be located on any surface facing inwards to the space.

3.4.3 It is proposed to install the required area of Class C absorber on the corridor ceilings.

4 Conclusion

4.1 It is proposed to construct a new four storey development comprised of mixed residential and commercial/retail usage at 69 Highgate High Street, London, N6 6DA.

4.2 Construction performance for party floors have been provided within this report which meet the requirements of Approved Document E.

End of Section