

NOISE IMPACT ASSESSMENT

465 Princess Road Manchester

Rev 0



1.0

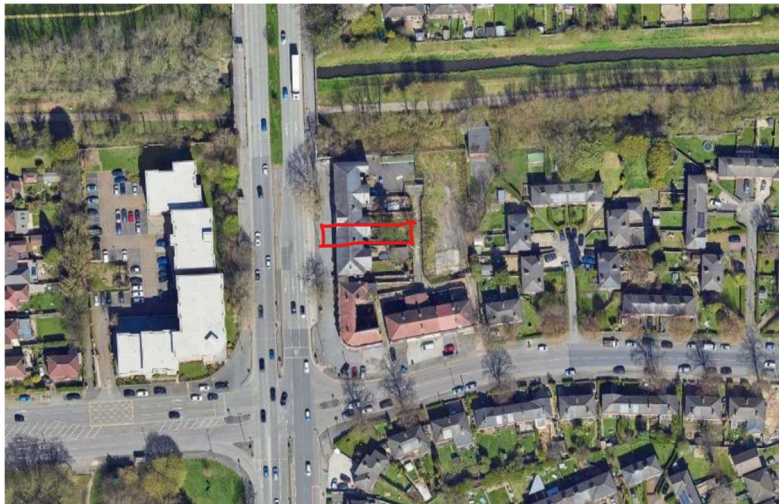
INTRODUCTION

- 1.1 This noise impact assessment supports a full planning application and change of use to convert an existing retail/office unit with two one-bedroom apartments above. The second apartment will require new dormer extensions to the front and rear
- 1.2 This noise impact assessment should be read in conjunction with the drawings provided by designworks which include existing and proposed site plans, floor plans, elevations and sections.

2.0

SITE CONTEXT

- 2.1 The building is located at 465 Princess Road M20 1BH .
- 2.2 Princess Road is part of the A45103 which is a major thoroughfare connecting the end of the M56 motorway in south Manchester to the city centre which lies 3km to the north of the site
- 2.3 The building sits within a terrace of commercial shop units and is set back some 6m from the back of the pedestrian pavement.
- 2.4 The ground floor retail will be speculative and used as an office or a shop. There is not expected to be any significant noise output from the ground floor retail
- 2.5 The focus of the noise assessment will therefore be the protection of amenity for the residents of the apartments.
- 2.6 The main source of noise external to the site is from the busy Princess Road immediately to the west
- 2.7 Some guidance is also provided regarding the sound insulation between the retail and the first floor apartment and between the first and second floor apartments. Both of these situations are covered by the Building Regulation requirements



Development site in context

3.0

ASSESSMENT

- 3.1 Typically, a background noise survey would be undertaken to meet the BS4142 Assess
- 3.2 However, in this case the client is aware that the survey is likely to recommend some improved measures and would prefer to install these in any case based on a worst case scenario.
- 3.3 Designworks have carried out a number of residential projects requiring noise impact surveys in similar locations and have based the design of the building on the experience of these recommendations
- 3.4 The precedent used here relates to a development at Mellor Road in Cheadle Hulme that is located some 15m from a busy commuter railway line. The sound levels are given in the table below.

3.3 Background Sound Levels

The extract fan would operate from around midday until 22:00 hours, while the condensers would operate 24 hours a day.

The relevant background sound levels from the Hepworth Acoustics report submitted in support of planning permission DC/074037 are as follows:

Period	Typical L_{A90} dB*
Midday to 22:00 hours (extract fan on)	40
24 hours (condenser)	36*

*Note:- the absolute minimum background sound level dropped to around 25 dB at one point during the survey, but BS 4142 states that the assessment should be based on what is typical for the period (i.e. 23:00 – 07:00 hours), not the absolute lowest level.

- 3.5 It is assumed that the road noise from Princess Road will not exceed the background noise levels experienced at Mellor Road.
- 3.6 The proposed improvements recommended at Mellor Road exceed the performance requirements of all other similar residential projects.
- 3.7 The BS8233 recommended noise level in residential properties during the daytime operating period of the commercial unit below is $\leq 35 \text{ dB } L_{Aeq, 16 \text{ hour}}$.
- 3.8 Approved Document E recommends a higher level of sound insulation between a dwelling and a non-domestic area. The requirements of E1 for a material change of use is $D_{nT,w} + C_{tr} 43$
- 3.9 The construction of the intermediate floor must be designed to ensure that this is not exceeded.

4.0

GLAZING RECOMMENDATIONS

- 4.1 It is recommended that glazing to the front elevation facing Princess Road be upgraded with acoustic performing double glazed units
- 4.2 These windows shall achieve a minimum sound rating of $32\text{dB } R_w + C_{tr}$
- 4.3 Typically the specification to achieve this would be a 6mm internal pane, 16mm cavity and 6.4mm laminated outer pane such as Saint Gobain Stadip Silence
- 4.4 Opening windows to the Princess Road elevation could lead to noise nuisance from traffic so background ventilation is proposed via the use of passive acoustic wall vents.

4.5 The vents will need to provide passive acoustic ventilation of 40dB D_{n,e,w}

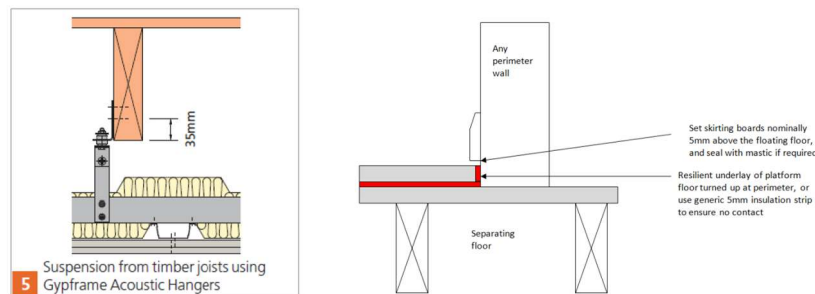
5.0 CONSTRUCTION GUIDANCE

5.1 The floor separating the dwelling from the non-domestic use at ground floor will need to be constructed to meet the required sound insulation. The construction should be a certified and tested build up and will need to be tested prior to completion to demonstrate compliance with Approved Document E

5.2 To achieve this an acoustic ceiling will need to be installed below the existing floor joists

5.3 A typical construction would be the use of a suspended Casoline MF ceiling fixed to the joists with GAH1 acoustic hangers. This should be suspended a minimum 300mm below the floorboards.

5.4 The ceiling would be underdrawn with two layers of 15mm soundbloc plasterboard and overlaid with 100mm mineral wool



5.5 This construction will achieve a sound insulation of $D_{nT,w} + C_{tr} \geq 50$ dB

5.6 The construction will also achieve the necessary 60 minutes fire resistance

5.7 Recessed light fitting or penetrations for ventilation should be avoided

5.8 A similar construction is proposed for the new second floor construction although head room issues will likely mean the void is less than 300mm

5.9 The intermediate floor between dwellings will also be required to provide impact sound resistance in addition to the airborne noise insulation.

5.10 To provide the required impact sound insulation a floating floor will be required throughout the second floor apartment

5.11 A product such as Collecta Screedboard would be suitable or the use of a 5mm regupol membrane.

5.12 The perimeter detail is critical to performance and the floating floor should not be in contact with any of the external walls or internal partition – see diagram above

5.13 It is recommended that further acoustic advice is sought when preparing the detailed drawings to ensure that the selected floor constructions will be compliant with the Building Regulations and will pass the requisite pre-completion testing