



Mixed-use development (change of use) at 2 Salkeld St, Rochdale:

Noise Assessment

Mr Numaan

15 November 2023

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EXECUTIVE SUMMARY

The results of a desk-based assessment of noise are presented, with respect to the proposed change of use of a residential property at 2 Salkeld Street, Rochdale to provide commercial use at ground-floor and residential above.

The assessment shows that, with a combination of the current construction detail and, where judged insufficient, additional or upgraded construction detailing, internal transmission of noise between the commercial and residential uses can be suitably mitigated such that the residential amenity of future residents of the first-floor residential use will be suitably protected.

The assessment concludes, therefore, that with the recommended construction details, there will be little likelihood of noise disturbance to the occupants of the first-floor residential use and that noise need not be a reason for refusal of planning permission.

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1. INTRODUCTION

- 1.1 EnviroSolution Ltd was commissioned by Mr Numaan to undertake an assessment of noise affecting the proposed mixed-use change of use of an existing building at 2 Salkeld Street, Rochdale, Greater Manchester.
- 1.2 The property is located in a primarily residential area and was formerly a mixed-use building with commercial use at ground-floor, subsequently converted to fully residential. The current proposals are for the premises to be returned to mixed-use, comprising a Jewellers at ground-floor.
- 1.3 The proposed site location, in the context of its surroundings, is presented in Figures 1 and 2, and the proposed layout is presented in Figure 3.

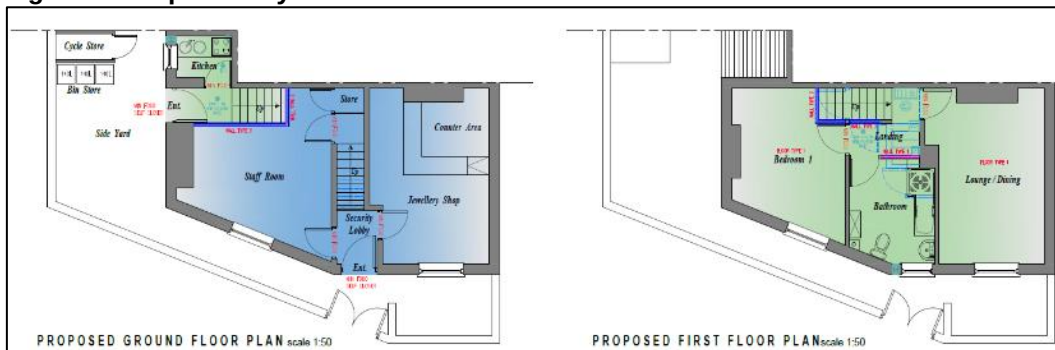
Figure 1: Application building and surroundings



Figure 2: View of premises from street



Figure 3: Proposed layout



- 1.4 General urban and traffic noise is likely to be the dominant external noise affecting the building but this is likely to be at a very low-level and is not considered to be a significant cause for concern, given the residential setting. This aspect is not considered further.
- 1.5 The principal concern is the potential for the passage of noise from the commercial use at ground-floor to the residential use above; the day time ground-floor use as a jewellers is unlikely to generate significant levels of noise. However, it is appropriate that the proposed construction detail is assessed to ensure that there is little likelihood of disturbance to the residential occupants above the commercial premises.
- 1.6 This report presents the results of a desk-based assessment, principally of the potential for internal noise transmission between the commercial and residential use. Where appropriate, recommendations for suitable noise control and mitigation measures are discussed.

2. GUIDANCE: INTERNAL NOISE

- 2.1 The Building Regulations 2010, Approved Document E: *Resistance to the passage of sound*, provides minimum sound insulation performance standards for separating party wall and floor constructions between adjacent dwellings (houses and flats).
- 2.2 The appropriate acoustic performance standards for “flats formed by material change of use”, as provided at Table 0.1a of Approved Document E, are reproduced in Table 1.

Table 1: Performance standards of Approved Document E (Table 0.1a)

Dwelling-houses and flats – performance standards for separating walls, separating floors and stairs that have a separating function.		
	Airborne sound insulation $D_{nT,w}+C_{tr}$ dB (minimum values)	Impact sound insulation $L'_{nT,w}$ dB (maximum values)
Purpose built dwelling-houses and flats		
Walls	45	--
Floors and stairs	45	62

- 2.3 Approved Document E states that separating floors, must achieve a minimum airborne sound insulation performance of **45 dB $D_{nT,w}+C_{tr}$** . The reference to “separating walls” in Table 1 is not relevant to this scheme.
- 2.4 It should be noted that although a minimum performance of 45 dB $D_{nT,w}+C_{tr}$ is required from party floor constructions, this performance standard applies to adjacent dwellings only. Therefore, applying the 45 dB $D_{nT,w}+C_{tr}$ performance requirement will provide a conservative level of protection of the proposed residential use.
- 2.5 It is typical for an Acoustic Consultant, or Local Authority, to suggest an appropriate criterion based on the anticipated commercial usage.
- 2.6 The Building Regulations also state that new internal walls within dwellings (e.g. to kitchens, bathrooms, toilets etc.) will need to provide a laboratory rated performance standard of at least **40 dB R_w** .

3 ASSESSMENT & DISCUSSION

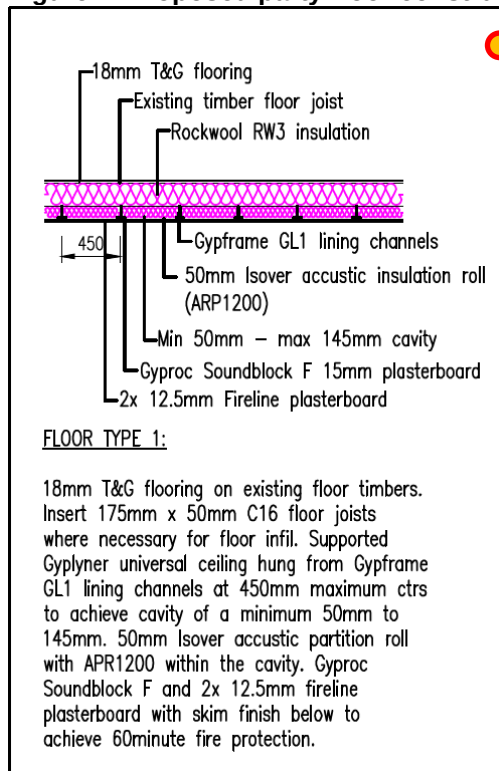
Internal noise transmission between commercial and residential uses

- 3.1 Relatively detailed construction specifications have been provided for the building and these were reviewed to ensure suitable protection of the future residential occupants of the first-floor of the property.

Separating party floor construction: acoustic suspended ceiling

- 3.2 In order to minimise the vertical transmission of airborne noise, we typically recommend that a suspended acoustic plasterboard ceiling is installed in the ground-floor commercial premises. This would normally comprise a minimum 2 x 12.5 mm Soundbloc plasterboard (or similar dense board) suspended via a metal-framed system, with a minimum mass per unit area of a new acoustic ceiling is at least 20 kg/m². Using two layers of acoustic/dense plasterboard typically satisfies this recommendation.
- 3.3 Drawing BR01, provided by TDM Architectural Ltd, presented as Figure 4, shows a suitable Gyframe suspended ceiling construction with a 3-layer plasterboard underside to the ceiling, incorporating 15mm Soundbloc plasterboard and 2 layers of 12.5mm Fireline plasterboard. The cavity is shown as being filled with 50mm Isover acoustic mineral wool insulation.

Figure 4: Proposed party-floor construction detail



- 3.4 It is recommended that acoustic hangers are used to isolate the plasterboard from the structure. Suitable acoustic hangers for this Gyframe floor would be Gyframe GAH1 Acoustic Hangers.
- 3.5 The acoustic plasterboard should be installed with staggered joints with the joints to the outer board layer sealed with tape or caulked with sealant and the perimeter edge of the ceiling boards also sealed with flexible sealant. Ideally, a small perimeter gap (2 – 3 mm) should be maintained to ensure the new ceiling boards do not touch the surrounding walls.

- 3.6 The suspension depth between the joists and the top of the acoustic plasterboard should be as large as possible to improve performance.
- 3.7 Typically we would recommended a minimum of 150 mm thick mineral wool insulation within the cavity above the acoustic plasterboard and this is incorporated within the proposed construction.
- 3.8 It should be noted that down-lighting degrades the high frequency sound insulation of the ceiling. If down-lighting is required, acoustically-rated down lighters should be installed or alternatively acoustic hoods should be installed over the unit.
- 3.9 With this construction, the separating floor is expected to achieve an airborne sound insulation performance of at least 45 dB $D_{nT,w}+C_{tr}$ which will provide sufficient protection from noise for the residential occupants above.

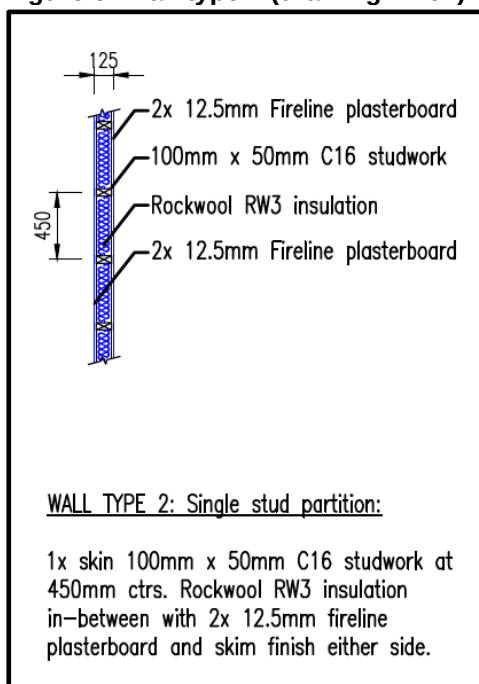
Service penetrations

- 3.10 Any pipes/services that penetrate the separating floor should be enclosed for their full height in each room.
- 3.11 The enclosure should be constructed from two layers of British Gypsum Soundbloc or Fireline plasterboard. The enclosure should also be lined with 25 – 50 mm thick mineral wool or alternatively wrap the pipe within the enclosure.
- 3.12 A small gap (5 mm) should be maintained between the service enclosure and the floor base and the gap sealed with flexible sealant. Similarly, the small gap between the enclosure and the ceiling boards should also be sealed with flexible sealant.

Internal stud walls

- 3.13 Internal walls will need to achieve a laboratory rated sound insulation performance of at least 40 dB R_w .
- 3.14 The design incorporates a new stair-well which shares a party wall with the bedroom; this is currently shown as Wall Type 2 (Figure 5), comprising a double layer of 12.5mm Fireline plasterboard either side of a 100mm x 50mm studwork wall filled with Rockwool RW3 mineral wool insulation. This construction will provide suitable sound insulation performance.

Figure 5: Wall type 2 (drawing BR01)



- 3.15 Using the Insul™ specification software, this construction was calculated to provide 45 dB R_w of sound insulation, significantly better than the requisite 40 dB R_w .
- 3.16 The current drawing provides no construction detail for the internal walls between the bathroom/toilet and habitable rooms (bedroom and dining/living room). These will be stud walls and it is recommended that these should be as per Wall Type 2 in drawing BR01; Wall Type 1 provides insufficient sound insulation performance.

4 CONCLUSION

- 4.1 This assessment has provided a review of construction details for the proposed change of use at 2 Salkeld Street, Rochdale, to provide a Jewellers shop at ground-floor level with a single residential use above.
- 4.2 Given the setting of the building within a residential area, low levels of external noise i.e. local urban and traffic noise, was deemed to be of no great concern for this development and has not been assessed.
- 4.3 With respect to internal noise transmission of noise between the ground-floor commercial use and residential above, the currently proposed internal construction detail was judged, for the most part, to provide sufficient sound insulation between the ground-floor commercial and residential use above; where insufficient detail was provided or where construction details were judged insufficient, the assessment has provided recommendations for more suitable construction details, to ensure that residential amenity for the residential occupants will be protected.
- 4.4 The assessment concludes, therefore, that with the recommended construction details, there will be little likelihood of noise disturbance to the occupants of the first-floor residential use and that noise need not be a reason for refusal of planning permission.