

Attn: Roberta Baldassare
F3 Architects
5 Rochester Mews
London
NW1 9JB

Our Ref: LA/1790/02aR/ML

31st October 2022

Dear Roberta,

807 High Road, London N17 8ER
Condition 6 Design Details

Condition 6 of planning application ref: HGY/21/0441 requires that details be submitted prior to commencement, of walls and floor separating the 1st floor commercial space in Block A of the above development, with the 2nd floor residential apartment and adjoining 1st floor properties. The purpose of the condition is to ensure that any commercial activity taking place in the commercial unit does not adversely impact on the amenity of occupiers of the surrounding residential units.

The condition is worded as follows:

Block A – Noise Attenuation 1

6. (a) No development of Block A at slab level or above shall commence until such times as full details of the ceiling slab/walls and any other noise attenuation measures between the first floor commercial unit (Use Class D2/B1) and dwellings on the second floor of the approved scheme and between this unit and existing homes in Nos. 803-805 High Road and No. 809 High Road have been submitted to and approved in writing by the Local Planning Authority.

(b) The details shall be designed to ensure that at any junction between existing and proposed dwellings and the first floor commercial unit, the internal noise insulation level for the dwellings is no less than 60 dB $D_{nT,w} + C_{tr}$.

(c) The approved ceiling slab/walls and any other noise attenuation measures shall be completed prior to the occupation of the second-floor dwelling directly above the commercial unit is first occupied and shall be maintained thereafter.

REASON: In order to ensure a satisfactory internal noise environment for occupiers of these dwellings.

It is noted that part (b) of the condition requires the sound insulation performance of the separating partitions to achieve 60dB $D_{nT,w} + C_{tr}$, significantly more robust than Building Regulations requires from a new-build separating floor of minimum 45dB $D_{nT,w} + C_{tr}$. This is assumed to be required due to the unknown specific use of the commercial space at the time the condition was written, and what was thought to be the potential for D2 use – as indicated in the condition wording above.

However the granted permission was for the 1st floor space of Block A to be 'Class E,g,i' use, which is office space designed to be suitable in a residential area. The potential for noisy activities is therefore somewhat diminished from that envisaged in the condition, and whilst no specific use has been agreed at the time of writing, it will be constrained by the planning class granted permission.

Nevertheless, the separating floor and walls referred to in Condition 6 have been designed to meet the condition criterion. Figures 1 and 2 below detail the current designs for the floor/ceiling separating the 1st floor commercial space with the 2nd floor residential space in Block A, and the separating 1st floor wall treatment to adjoining properties, respectively.

Figure 1. Proposed separating floor – Block A 1st – 2nd floor

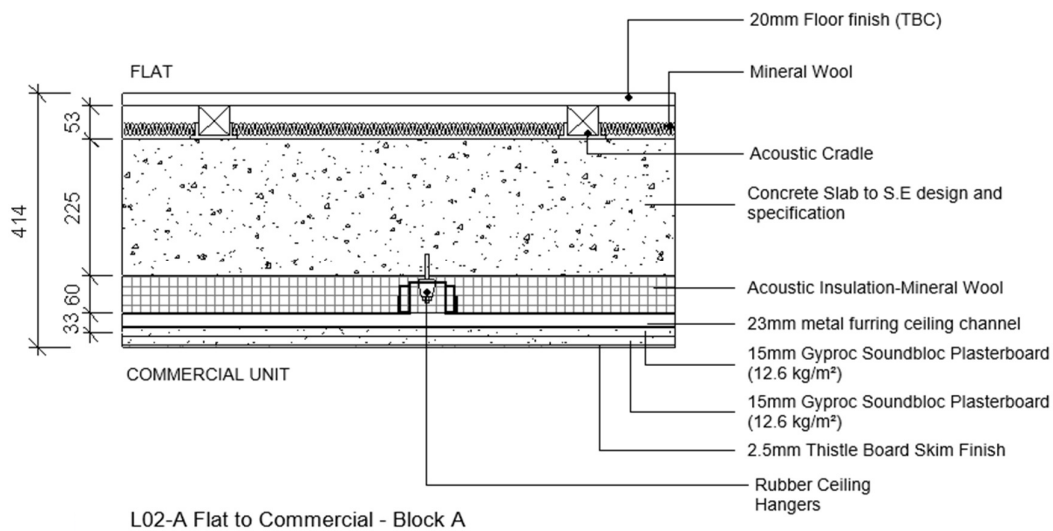
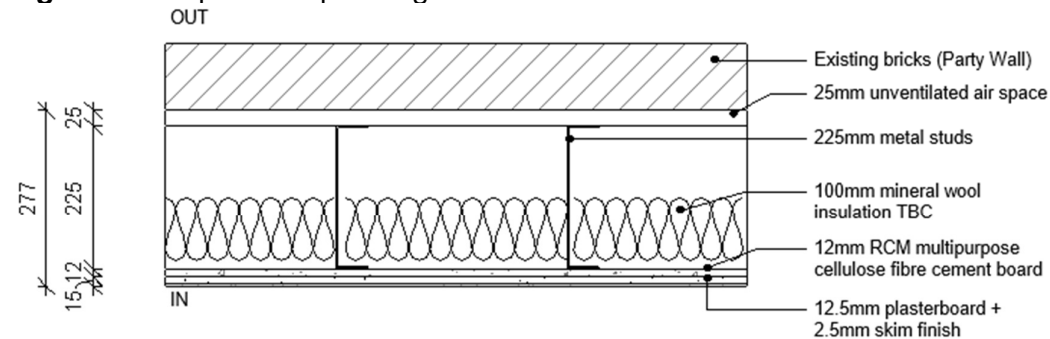


Figure 2. Proposed separating wall treatment – Block A 1st floor



Party Wall Wall Type 03 - P.W. with Existing Brick Wall

Separating Floor

Figure 1 above shows the build-up of the proposed separating floor between the 1st floor commercial space in Block A, with the new second-floor residential apartment. As discussed earlier the permitted use of the first floor is far less likely to generate any significant noise than may have initially been considered possible, but the floor build-up has been designed to meet the Condition 6 criterion.

The primary mass of the 225mm RC in-situ slab will provide the main sound insulation of the floor system, and alone could be sufficient to meet the sound insulation performance requirements of Approved Document E of the Building Regulations. It would therefore likely offer sufficient protection from the proposed commercial use.

The mechanical separation of the floating floor layer from the slab, and acoustic absorption in the void, will increase the performance of airborne sound as well as provide protection from impact sound. Whilst the latter benefit may not be necessary for the 1st floor space as commercial use, should the space be converted to residential in the future, the impact sound protection will already be in place.

The floating floor will provide a relatively small increase to the sound insulation performance of the floor slab, but a significant effectiveness of a partition's performance is the extent of separation of two mass layers. In this instance the addition of the significant mass layer of the ceiling (25kg/m²) separated from the slab soffit by 70+mm, and mechanically separated from the slab by a resilient hanging system will improve the sound insulation performance by a far greater margin than the floating floor. Inclusion of absorbing mineral wool in the void will greatly reduce any reverberant build-up of sound and further improve performance.

The choice of material is important to the effectiveness of the partition. Gypsum SoundBloc (or equivalent) has been specified for the ceiling mass as it is stiffer than normal wallboard and therefore more resistant to the transmission of the low-frequency sound accounted for in the ' C_{tr} ' parameter of the target level. The resilient hangers proposed are type HDLP-A from Mason UK, which support a MF grid ceiling system to which the plasterboard ceiling layers attach. The density of the open-faced mineral wool in the ceiling void will be 30-50kg/m³, which is denser than normal thermal insulation, to provide increased absorbing material without impeding sound energy penetration.

These brackets ensure that ceiling fixings into the soffit are connected via a rubber bush on the bracket, thus avoiding the direct transmission pathway of any sound that breaks through the slab. The rubber element in this bracket has low dynamic stiffness, providing up to 6mm deflection. This feature will further benefit the absorption of the critical high energy, low frequency sound and help achieve a low C_{tr} correction.

As a result, it is predicted that the floor system will perform very well acoustically, including at the lower end of the frequency spectrum, and the overall sound insulation performance should ensure that the condition criterion will be met.

Separating walls

The make-up of the existing separating walls between first floor space in Block A and nos. 805 and 809 High Road are not definitively known as of writing, but it is understood that based on the visible wall on the site sides, they are likely to consist of 225mm solid brickwork, at the very least. In reality it is possible that some enhancement would have been applied to the party walls within the neighbouring properties when adapting to residential use (if this is what their use is?), but without the specific detail they have to be assumed as a minimum 225mm brick wall - and the proposed wall lining is based on that assumption.

Figure 2 above shows the proposed build-up of the wall linings. As noted for the party floor, it is the separation of two mass layers that provides significant sound insulation performance, and in this instance there will be separation of 250mm, with an independent 225mm MF stud wall frame constructed 25mm clear of the existing wall face. This is a significant separation, which allows for slightly less thickness to the lining boards than the ceiling, but with a high mass 12mm cementitious board and 12.5mm plasterboard. Within the MF frame will be 100mm of acoustic absorption mineral wool with a density of 20-30kg/m³ to provide adequate absorbing material, without compromising the ingress of sound energy (i.e. not reflecting).

It is noted above that the sound insulation of the party walls may be less critical than originally considered in the Condition 6 criteria, but the build-up detailed above would be expected to meet the required level of performance.

It should also be noted, however, that the sound insulation performance of these partitions is dependant on the quality of the workmanship and attention to construction detail, particularly in the mechanical separation of the ceiling boards and wall linings from the main mass layers of brick wall and concrete floor. For these layers, it is important that there is no direct mechanical contact at the junctions of surrounding walls and floors. A separation gap of approximately 5mm should be allowed for and filled with flexible acrylic mastic to allow for a degree of independent movement of the wall and ceiling lining boards.

Additionally, at the junction of the walls and ceiling, the wall lining should be taken to the concrete soffit and the ceiling boards extending to the wall boards – again with the 5mm filled gap. This will reduce the likelihood of flanking sound transmission, which could otherwise affect the overall sound insulation of the partition.

In conclusion, and assuming the necessary workmanship and construction details are followed, it is predicted that the separating floor and wall specifications proposed above should provide the required level of sound insulation detailed in Condition 6, attached to the planning permission of application ref: HGY/21/0441. This document is therefore considered suitable to support the discharge of Condition 6.

If you wish to discuss any of the above, please do not hesitate to contact me.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'M. Loven', with a stylized, cursive script.

Martin Loven
BSc (Hons) MIOA