



Dancastle Court

Acoustic Design Review

February 2024

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Document Control Sheet		Disclaimer
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1 Executive Summary

NRG Consulting have been commissioned to undertake a desktop acoustic assessment for the following **Dancastle Court, 14 Arcadia Avenue, London, N3 2JU**

The proposed description of development is: *Prior Notification of Class MA Permitted Development for the conversion of second floor Class E office space into two no residential apartments, (Class C3).*

This report reviews the build-up of the separating floor that separates the proposed commercial and residential area of the development and as well as a review of the existing build-up, provides recommendations for that of Part E compliance at the construction stage.

2 Acoustic Design Review of Change-of-Use Party Floor

The likely performance of the as-built party floor has been reviewed and estimated including based on similar details produced for other schemes using state-of-the-art proprietary software for sound insulation predictions, Insul v9.

2.1 Sound Insulation Performance Targets

Regulation E1 – Protection Against Sound from Other Parts of Building and Adjoining Buildings (Party Walls and Separating Walls)

“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” Approved Document E 2010

The following numerical performance standards apply to the residential element of the development:

Separating Element	Airborne Sound Insulation $D_{nT,w} + C_{tr}$ dB (Minimum Values)	Impact Sound Insulation $L'_{nT,w}$ dB (Maximum Values)
Change of use Dwelling-Houses, Flats and Rooms Residential Purposes – Floors and Stairs	≥ 43	≤ 64

The ADE performance standards, specified as $D_{nT,w} + C_{tr}$ relate to the on-site sound insulation values. For design purposes however, the $D_{nT,w} + C_{tr}$ must be translated into known sound insulation properties of the various components making up partition walls and floors so that appropriate constructions can be determined. The sound insulation of various construction elements is usually measured and rated in acoustic test laboratories and quoted in terms of the Sound Reduction Index, $R_w + C_{tr}$.

The ADE performance standard for impact sound insulation is specified as $L'_{nT,w}$ and relates to the on-site impact sound pressure value. For the purposes of design the $L'_{nT,w}$ value has been converted in to a $L_{n,w}$ value to allow for the floor construction to be accurately assessed.

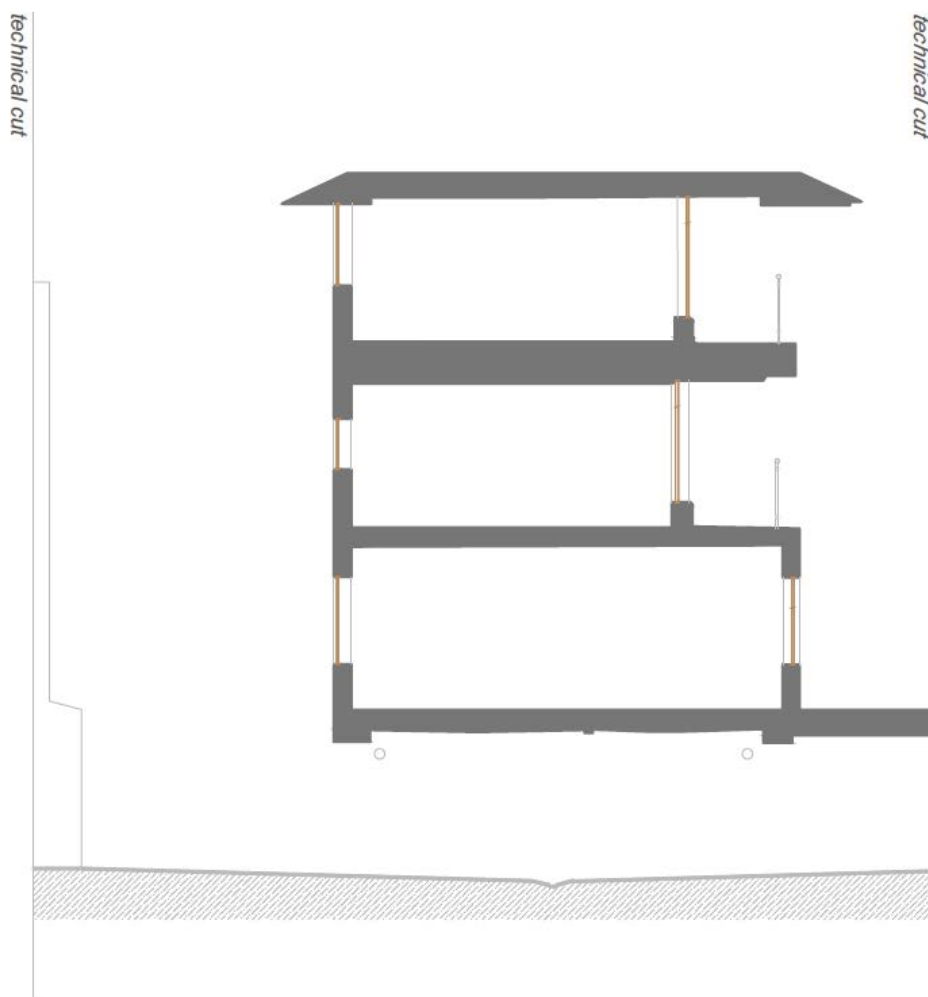
The minimum performance requirements for separating elements within this development in terms of $R_w + C_{tr}$, and $L_{n,w}$ are in Table 1 and Table 2.

Area	Type	ADE Requirement
Separating Elements	Change of Use Wall	$\geq 50 \text{ dB } R_w + C_{tr}$
	Change of Use Floor	$\geq 50 \text{ dB } R_w + C_{tr}$

Table 1: Summary of Airborne Sound Insulation Requirements

Area	Type	ADE Requirement
Separating Element	Change of Use Floor	$\leq 59 \text{ dB } L_{n,w}$

Table 2: Summary of Impact Sound Insulation Requirements



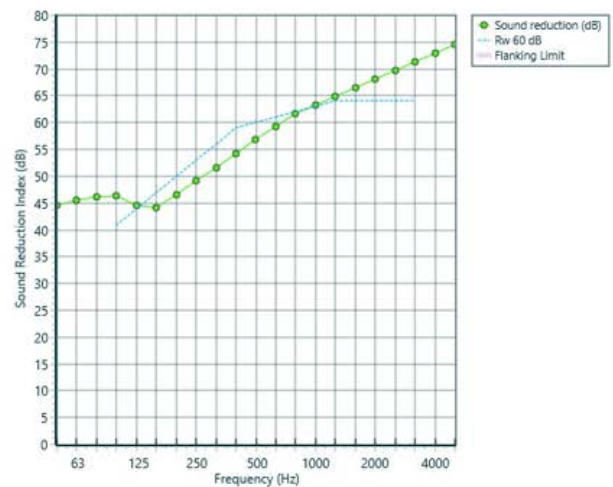
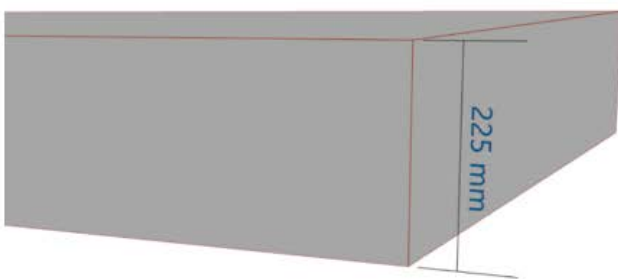
Section 1

Figure 1: Proposed Section

3 As-Built Party Floor Specification

The as-built party floor specification is assessed below.

Construction Build-Up (Existing)	Design Criteria	Predicted Performance	Difference (dB)
<p>The existing floor is a 200-225mm in situ reinforced concrete slab, with a 20mm levelling screed over the top with carpet tiles.</p> <p>The office below would have a simple lay in grid tile ceiling, with no insulation.</p> <p>Proposed: Addition of a 6mm Regupol layer to the slab.</p>	<p>Airborne Sound 50 dB $R_w + C_{tr}$</p>	<p>Airborne Sound 52 dB $R_w + C_{tr}$</p>	+2
	<p>Impact Sound 59 dB $L_{n,w}$</p>	<p>Impact Sound 54 dB $L_{n,w}$</p>	+5



The requirements of the ADE Building Regulations 2010 would likely be achieved, if tested in accordance with the methodology outlined in the Approved Document E.

3.1 Background Noise Levels

Background noise levels in the residential units are likely to be due to intrusive environmental noise and continuous mechanical ventilation noise. It is assumed that environmental noise would be controlled so that the noise levels in the apartments are lower than the BS 8233: 2014 guidelines and the mechanical ventilation noise does not exceed L_{Aeq} 30 dB, as recommended by Approved Document F¹.

Noise transfer would be limited so that noise transfer from the office is less than the likely background noise levels

4 Conclusion

In summary, based on the proposed separating floor build-up, being of reinforced concrete and with the addition of an acoustic resilient layer, there are no potential issues with sound separation between the proposed residential and commercial demise of the building.

Therefore it is the opinion that sound transfer between the commercial and residential demises not be a barrier to the granting of planning permission.

i Ventilation, Approved Document F, The Building Regulations, 2010, HM Government, 2021