

ACOUSTIC TECHNICAL NOTE

Reference:	8231.ATN06.ADO.1
Revision:	1
Date:	08 August 2025
Project:	Former Nestle Site, Hayes Village
Subject:	Block C – Approved Document O Assessment

1.0 INTRODUCTION

RBA Acoustics has been appointed to provide acoustic advice in relation to the ongoing residential development at the former Nestle Site in Hayes. It is understood that Block C of the development is to be subject to the requirements of Approved Document O. The remaining blocks on the site are not subject to the requirements of Approved Document O.

This note sets out an initial assessment based on the acoustic requirements detailed in Approved Document O.

2.0 CRITERIA

Building Regulations Approved Document O (2021 edition) provides guidance for mitigating overheating within residential developments. The document states that the building should be constructed to meet the requirement using passive means as far as reasonably practicable. With regards to removing excess heat, the first choice is therefore to use openable windows to mitigate overheating.

The document provides a simplified method for demonstrating compliance and an alternative, more detailed, dynamic thermal modelling approach. With regards to acoustic impact the following references are made:

3.1 *The standards in this section may mean that the standards of the simplified method cannot be met. For example, if external noise is an issue, it is unlikely that windows would be opened by an occupant and therefore the minimum free areas of the simplified method cannot be met. In such cases, **dynamic thermal modelling** should be used.*

NOISE

3.2 *In locations where external noise may be an issue (for example, where the local planning authority considered external noise to be an issue at the planning stage), the overheating strategy should take into account of the likelihood that windows will be closed during sleeping hours (11pm to 7am).*

3.3 *Windows are likely to be closed during sleeping hours if noise within bedrooms exceeds the following limits.*

- (a) 40 dB $L_{Aeq,T}$ averaged over 8 hours (between 11pm and 7am)
- (b) 55 dB L_{AFmax} more than 10 times a night (between 11pm and 7am)

3.4 *Where in-situ noise measurements are used as evidence of that these limits are not exceeded, measurements should be taken in accordance with the Association of Noise Consultants' Measurement of Sound Levels in Buildings with the overheating mitigation strategy in use.*

NOTE: *Guidance on reducing the passage of external noise into buildings can be found in the National Model Design Code: Part 2 – Guidance Notes (MHCLG, 2021) and the Association of Noise Consultants’ Acoustics, Ventilation and Overheating: Residential Design Guide (2020).”*

With reference to the above Paragraph 3.3, the following limiting external free-field levels (as would be measured on a site prior to development) are implied (as no specific external threshold limits are provided directly). External noise levels above these values would not permit the use of the simplified method (as referred to in Paragraph 3.1) and dynamic thermal modelling should be used to demonstrate compliance:

Table 1* – External Noise Levels above which the Simplified Method cannot be Used

Parameter	Locations with a High Risk of Overheating	Locations with a Moderate Risk of Overheating
L _{Aeq, 8h} , averaged over 8 hours (between 23:00 – 07:00)	44dB	49dB
L _{AFmax} , more than 10 times a night (between 23:00 – 07:00)	59dB	64dB

* This table has been reproduced with reference to the IOA & ANC document ‘Guide to Demonstrating Compliance with the Noise Requirements of Approved Document O – July 2022’.

The following should be noted with regards to the above:

- High / Moderate Risk refers to the risk of overheating (not noise)
- The noise thresholds are low and likely to be exceeded at most sites within towns and cities and also those in proximity to infrastructure / transport routes etc.

3.0 INITIAL ASSESSMENT

3.1 Assessment Methodology

This site, located in UB3, falls within a high-risk area for overheating as specified in Appendix C of Approved Document O (Areas with a high risk of its buildings overheating). As such, the external noise limits for allowing the use of the simplified methods are as follows:

- | | |
|---|-------|
| ▪ L _{Aeq, 8h} averaged over 8 hours (between 23:00 – 07:00) | 44 dB |
| ▪ L _{AFmax} more than 10 times a night (between 23:00 – 07:00) | 59 dB |

Should these levels be exceeded externally, thermal dynamic modelling may show that lower free area requirements may still achieve the overheating criteria. This could still be achieved by fully opening windows. Experience indicates that fully opening a window offers in the region of 4dB to 9dB reduction from measured external noise level to internal level.

Based on the above, the following noise risk categorisation has been developed as outlined in Table 2.

Table 2 – Acoustics and Overheating External Noise Risk Categorisation

Noise Risk Category	External Night-time (23:00 to 07:00 hours) Façade Noise Levels		Description
	Average L_{Aeq} Levels (dB)	Typical L_{AFmax} Level (dB)	
A	≤ 44	≤ 59	Internal noise levels highly likely to be below ADO criteria.
B	45 - 49	60 - 64	Internal noise levels likely to be within ADO criteria.
C	50 - 54	65 - 69	Internal noise levels may exceed ADO criteria, depending on window opening area.
D	55	≥ 70	Internal noise levels likely to be above ADO criteria.

3.2 Block C – External Noise Levels

The external night-time L_{Aeq} noise levels around the site have been based on the original noise survey for the development, full details of which were provided in the RBA Acoustics report 8231.RP01.AAR.3 dated 17 October 2019. As noted in that report, the variation of noise levels around the site were predicted also using an environmental noise model of the area, based on the noise survey data for the site.

Noise levels range from L_{Aeq} 35 to 45 dB in the shielded courtyard facing areas (with the exception of the upper most levels which are more exposed to the surrounding noise sources).

The more exposed outward facing elevations are subject to nighttime noise levels of around L_{Aeq} 55 to 57 dB.

L_{AFmax} levels at night are typically around 66 to 69 dB, and this is considered representative of the outward facing elevations. The sources at the site are noted to primarily be road traffic, rail traffic, and industrial sources. On this basis, the more shielded courtyard facing elevations would be subject to lower levels L_{AFmax} levels, which would be below the threshold at which noise would be considered to be an issue under Approved Document O.

On this basis, it is considered that bedroom windows facing into the courtyard would not be subject to noise constraints, and that bedroom windows can be opened to control overheating even during the night-time period. The exceptions to this are the topmost floors which are less shielded from the surrounding noise sources.

However, due to the measured L_{Aeq} and L_{AFmax} levels at the site, it is considered that all outward facing bedroom windows and those on the upper levels should remain closed during the night-time.

The areas where bedroom windows can open at night, and the areas where they need to remain closed at night are indicated on Figure 1 appended to this report.



KEY

- Bedroom windows to remain closed at night (23:00 to 07:00)
- Bedroom windows can be opened to control overheating at night (23:00 to 07:00)

Former Nestle Site, Hayes Village
Acoustic Constraint Mark Up (Approved Document O)
Project 8231

Figure 1
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Not to Scale