

TECHNICAL REPORT

Prepared on behalf of Vistry Group

ARDENT
CONSULTING ENGINEERS

AN EMPLOYEE OWNED COMPANY

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DOCUMENT CONTROL

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DISTRIBUTION

This technical note has been prepared for the exclusive use of Vistry and the project energy consultant. It should not be used or relied upon by others without the express written authority of Ardent Consulting Engineers.

1. INTRODUCTION

This technical note has been prepared based on a noise survey which was undertaken at the site. The measured noise levels, the site layout, and the predicted traffic flows on the site access roads have been used to produce a noise model to undertake an analysis of the noise impact during overheating events at the proposed development.

This note outlines the maximum equivalent open areas of ventilating façade elements, such as open windows, louvres, or trickle ventilation, which are sufficient to reduce noise levels to meet the criteria of the simplified assessment method set out in Approved Document O of the Building Regulations (ADO).

2. SURVEY DETAILS

An environmental noise survey was undertaken between 5th-12th February 2025. Measurements of an event at Adur Model Car Club were taken on the 23rd February 2025.

The measurement positions are shown in Figure 2-1. Measurement positions were selected to obtain representative baseline noise levels due to road traffic noise from the Steyning Bypass, the Adur Model Car Club, and the BESS to the east of the site.



Figure 2-1: Measurement Positions

The noise environment at the site is dominated by road traffic on the Steyning Bypass and the surrounding road network. Noise from the BESS and birdsong also contributed to the noise environment.

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A summary of the measurements taken at the site are shown in Table 2-1.

Monitoring Position	Ambient Sound Level dB L _{Aeq, T} Range (Average)		Night dB L _{AFmax} Range (Representative)
	Day	Night	
P1	55-70 (66)	23-67 (40)	30-85 (80)
P2	35-64 (49)	26-56 (42)	27-72 (66)
P3	38-60 (48)	38-56 (44)	38-75 (62)
P4*	46-64 (60)	-	-

*Measurements during the day only

Table 2-1: Summary of Measured Noise Levels

3. RELEVANT CRITERIA

Approved Document O of the Building Regulations

ADO covers the overheating mitigation requirements of the Building Regulations as set out in Part O of Schedule 1 to the Building Regulations. The criteria set out in ADO applies only to new residential buildings.

Appendix C of Approved Document O sets out areas which are considered to be at a high risk of overheating, based on the area in which they are located. The site is not located in any of the high risk areas and is therefore considered moderate risk.

Whilst the focus of ADO is on the assessment of overheating relating to thermal comfort, ADO also provides criteria for noise levels which need to be considered in terms of the likelihood that windows will be closed within bedrooms during sleeping hours, the criteria is as follows:

"Windows are likely to be closed during sleeping hours if noise within bedrooms exceeds the following limits:

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

Approved Document O Noise Guide (November 2024)

Guidance has been published by the Institute of Acoustics and the Association of Noise Consultants which sets out methods to demonstrate compliance with the Building Control Body of the noise constraints in Approved Document O. The guide provides clarity for practitioners and regulators so that assessment can be carried out consistently, and the outcome is repeatable and reliable.

The guide sets out an assessment methodology to establish the minimum required equivalent area of ventilating façade elements which is required to meet the simplified calculation method as set out in ADO, i.e., an equivalent area equal to 4% of the floor area.

The methodology uses the external ambient (dB $L_{Aeq,8hr}$) and maximum (dB L_{Amax}) sound levels during the night and the floor area of the room to calculate the maximum equivalent areas of ventilating façade elements which are sufficient to reduce noise levels.

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The equivalent area which is calculated considers all open areas within facades which provide ventilation, such as open windows, louvres, or trickle ventilation. Therefore the required reduction in noise levels must be achieved by all open areas within the façade which provide ventilation.

4. ASSESSMENT

At a number of dwellings, windows need to be closed across the site during day and night under normal conditions to achieve suitable internal amenity noise levels in accordance with BS8233.

This assessment sets out the equivalent area of ventilating façade elements for each bedroom of each dwelling at the site, based on the noise survey and noise modelling. Where facades are not marked up, an equivalent area of 4% of the floor area of the room is suitable, in accordance with the moderate risk criteria set out in section 4 of ADO, which describes the simplified overheating assessment method.

The equivalent area of 4% of the floor area should be tested by the project energy consultant, and if a larger equivalent area is required additional work will need to be undertaken.

At some bedrooms ventilating elements are not suitable and windows cannot be opened to meet the noise criteria of ADO. For all other facades of bedrooms where the noise criteria of ADO is not met, the equivalent area varies between 0.1-0.3m².

Any mechanical ventilation or other active cooling should be designed so that it does not increase internal amenity noise levels in excess of the criteria of condition 16, i.e., no greater than NR30 in bedrooms.

The site layout and internal layout of dwellings is fixed, with the exception of minor amendments, therefore the markups consider bedrooms only in accordance with the noise criteria of ADO. The equivalent areas vary across the building facades due to the varying room volumes and the external noise levels.

If the site layout and/or location of dwelling types changes, then an updated assessment should be undertaken.

5. CONCLUSION

This technical note outlines the maximum equivalent area of ventilating façade elements which are suitable to achieve the noise criteria of ADO. The assessment is informed by a noise survey and noise modelling. The assessment considers a range of equivalent areas up to 4% of the floor area of rooms, in accordance with the simplified method overheating assessment method as set out in ADO.

Noise levels mean ventilating façade elements are not suitable, and windows cannot be opened during overheating events in some bedrooms. For all other facades of bedrooms where an equivalent area of 4% of the floor area of the room is not suitable, the equivalent open area varies between 0.1-0.3m².

The equivalent areas should be tested by the project energy consultant to determine if thermal comfort can be achieved. If a larger equivalent area, then 4% of the floor area is required, then additional work will need to be undertaken.

Appendix A – ADO Noise Markups

