



Architectural & Environmental Consultants
Acoustics | Vibration | Air Quality

Condition 10 Noise Assessment

Millfields Farm, Rusper

Condition 10 Noise Assessment

Project: MILLFIELDS FARM, RUSPER

Report reference: RP01-25360-R0

Client: STONEBOND PROPERTIES (GUILDFORD) LTD
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Document control:

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TABLE OF CONTENTS

1. EXECUTIVE SUMMARY
2. INTRODUCTION
3. DEVELOPMENT DESCRIPTION
4. NOISE AFFECTING THE DEVELOPMENT
5. CONCLUSIONS

APPENDIX 1 DEVELOPMENT LAYOUT

APPENDIX 2 CASS ALLEN SURVEY RESULTS (2025)

APPENDIX 3 MODELLING RESULTS

APPENDIX 4 FACADE CALCULATIONS

APPENDIX 5 PART O ACOUSTIC REQUIREMENTS FOR BEDROOMS AT NIGHT

1. EXECUTIVE SUMMARY

- 1.1 Cass Allen has been instructed by Stonebond Properties (Guildford) Ltd to assess the acoustic design of a new development at Millfields Farm, Rusper, in accordance with Planning Condition 10 attached to planning permission reference DC/24/0699.
- 1.2 A noise survey was carried out at the site. Noise levels at the site are dictated by road traffic noise emissions (from East Street and Horsham Road) and aircraft from Gatwick Airport.
- 1.3 A 3D noise model of the development was constructed based on the results of a site noise survey. The noise model was used to calculate road traffic noise levels at all facades of the development, including a correction for the forthcoming speed limit reduction on East Street, determined in accordance with CRTN guidance.
- 1.4 Average noise levels from Gatwick Airport were determined using published noise contours and added to the modelling results to determine the total average noise levels at every facade across the development.
- 1.5 An acoustic specification for facade elements and ventilation systems has been developed to comply with BS8233:2014 and WHO noise guidance, in accordance with the requirements of Condition 10.
- 1.6 An assessment of external noise levels has been carried out in accordance with Approved Document and the ANC Acoustics Ventilation and Overheating: Residential Design Guide 2020. A mark-up has been prepared indicating areas of the development where the external noise levels may affect the overheating mitigation strategy.
- 1.7 It is our view that this report contains the information required to discharge Condition 10.

2. INTRODUCTION

- 2.1 Cass Allen has been instructed by Stonebond Properties (Guildford) Ltd to assess the acoustic design of a new development at Millfields Farm, Rusper.
- 2.2 The assessment has been carried out in accordance with the requirements of Condition 10 as per the decision notice ref. DC/24/0699. Condition 10 states the following:

Pre-Commencement (Slab Level) Condition: Prior to the commencement of development above ground floor slab level a scheme of acoustic attenuation and ventilation sufficient to maintain thermal comfort and avoid overheating shall be submitted to and approved in writing by the Local Planning Authority. The details to be submitted to the Authority shall have regard to the recommendations of the Residential Noise Impact Assessment (Sweco UK Limited, ref: 65211517 C04, dated 30.04.2024) and shall be based on the CIBSE overheating position statement, demonstrate that the CIBSE TM59 methodology has been utilised and CIBSE TM49 modelling requirements suitably considered within any modelling. Any mechanical ventilation to be incorporated shall be designed in accordance with the ANC Acoustics Ventilation and Overheating: Residential Design Guide 2020, and shall include performance details and a glazing plan sufficient to achieve habitable room standards as detailed in BS8233:2015 with no relaxation for exceptional circumstances and appropriate consideration of L_{Amax} values. The approved measures shall, thereafter, be implemented as approved and subsequently retained to an equivalent and/or superior standard.

Reason: To ensure that future occupiers are not exposed to unreasonable levels of acoustic disturbance and would otherwise benefit from sufficient internal ventilation without risk of overheating in accordance with Policies 24 and 32 of the Horsham District Planning Framework (2015).

- 2.3 This report contains technical terminology; a glossary of terms can be found at www.cassallen.co.uk/glossary.

3. DEVELOPMENT DESCRIPTION

- 3.1 The site of the consented residential development is bounded to the north by East Street and to the west by Horsham Road and residential properties. Gatwick Airport is approximately 3 miles to the northeast of the site. Therefore, aircraft take off and land to the north of the site.
- 3.2 The site location and surrounding area is shown in Figure 1 below. A current drawing of the development layout is provided in Appendix 1.

Figure 1 Site Location and Surrounding Area (red line shown approximately)



- 3.3 To address the requirements of Condition 10, the noise affecting the habitable areas of the development and the design of the external facades have been assessed. Updated noise guidance has been provided to inform the TM59 assessment, in accordance with the overheating requirements of Condition 10, Approved Document O, and the ANC Acoustic Ventilation and Overheating: Residential Design Guide 2020.

4. NOISE AFFECTING THE DEVELOPMENT

- 4.1 The noise levels that will exist within the habitable areas of the finished development have been predicted based on the existing noise environment at the site and details for the design of the development. Mitigation measures have been identified where necessary to comply with the adopted criteria from Condition 10.

Design criteria

- 4.2 Condition 10 refers to BS8233:2014 '*Guidance on sound insulation and noise reduction for buildings*' for internal noise criteria, and requires "appropriate consideration of L_{Amax} values". Design criteria for maximum noise levels in habitable rooms of new residential developments are given in the World Health Organisation (WHO) document '*Guidelines for community noise*', which recommends that "noise exceeding 45dB L_AF_{max} should be limited, if possible" and that "for a good sleep, it is believed that indoor sound pressure levels should not exceed approximately 45dB L_{Amax} more than 10-15 times per night". These criteria have been adopted for the purpose of this assessment, and are summarised in Table 1 below.

Table 1 Condition 10 Noise Criteria

Activity	Location	07:00 to 23:00	23:00 to 07:00
Resting	Living room	35 dB LAeq, 16hour	-
Dining	Dining room/area	40 dB LAeq, 16hour	-
Sleeping (daytime resting)	Bedroom	35 dB LAeq, 16hour	30 dB LAeq, 8hour 45 dB L _{Amax} , 10-15 times per night.

Existing site noise levels

- 4.3 A noise survey was carried out at the site from 11 to 15 January 2024 by Sweco (ref. 65211517-SWE-XX-XX-T-U-0001, hereafter "the Sweco report") to assess existing noise levels in the area. The results of this survey were submitted and are available as part of the consented outline planning application (ref. DC/24/0699).
- 4.4 Cass Allen carried out an additional survey at the site on 28 July 2025. The Cass Allen survey results support the existing Sweco data, and therefore the existing data will continue to be used for the purpose of this assessment, in accordance with Condition 10. The full methodology and results of the Cass Allen noise surveys is provided in Appendix 2.
- 4.5 Average noise levels (LAeq) across the site were dictated by road traffic on East Street, Horsham Road and, during the daytime, aircraft from Gatwick Airport (discussed further below). Noise levels across the site were generally low.
- 4.6 The Sweco report referred to the Noise Exposure Contours for Gatwick Airport 2022 to assess the long-term average noise levels associated with aircraft. This information has been superseded by

Noise Exposure Contours for Gatwick Airport 2024, from which we have reviewed the following relevant noise contours:

- Figure B15: Gatwick 2024 summer day standard modal split (75% W / 25% E) LAeq,16h contours,
- Figure B16: Gatwick 2024 summer night 10-year average modal split (73% W / 27% E) LAeq,8h contours.

4.7 The updated 2024 contours indicate that average noise levels at the site due to aircraft have not significantly changed since 2022, and therefore the site will be subject to the following average noise levels from Gatwick Airport:

- 51 dB LAeq,16hr during the daytime,
- 43 dB LAeq,8hr during the night-time.

4.8 The above noise levels have been logarithmically added to the road traffic noise levels for the assessment of noise affecting the development.

4.9 Maximum noise levels (LAmax) at the north of the site were largely dictated by vehicle passes on East Street. Maximum noise levels at western edges of the site were generally dictated by vehicle movements on Horsham Road. Aircraft taking off from Gatwick dictate the daytime maximum noise level across the site but do not typically operate during the night-time. Therefore, aircraft are insignificant to the night-time maximum noise levels on site.

4.10 Background noise levels (LA90) across the site were dictated by distant road traffic.

3D noise modelling

4.11 Based on the results of the Sweco and Cass Allen noise surveys, a 3D computer noise model was developed using CadnaA v2025 MR1 to predict and assess the noise levels that will exist across the entire development.

4.12 The model uses the calculation methodology from the Department of Transport Welsh Office - Calculation of Road Traffic Noise (CRTN) for the propagation of average road traffic noise, and ISO 9613-2:2024 *Attenuation of sound during propagation outdoors – Part 2: Engineering method for the prediction of sound pressure levels outdoors* for maximum noise levels (i.e. individual vehicles, modelled as point sources).

4.13 The layout of the development and surrounding area was input into the model. To calculate the spread of noise levels around the site, daytime and night-time average noise levels were input for the surrounding roads (i.e. Horsham Road, East Street) and calibrated to the results of the on-site noise measurements.

4.14 It has been confirmed by the design team that the speed limit on East Street will be reduced from 60mph to 30mph before the development is occupied, in accordance with Condition 9. The measured average noise levels (LAeq,16 and LAeq,8hr) have therefore been adjusted by -3.5 dB in the 3D model to account for this speed reduction, in accordance with guidance from CRTN.

- 4.15 The methodology and results of the noise modelling are provided in Appendix 3. After logarithmically adding the aircraft noise levels (see Paragraph 4.6 to 4.8), the dwellings at the north of the site, close to East Street, will be subject to the following highest noise levels:
- Average noise levels during the daytime - 58 dB LAeq,0700-2300hrs.
 - Average noise levels during the night-time - 50 dB LAeq,2300-0700hrs.
 - Typical maximum noise levels during the night-time - 58 dB L_{Amax}.

Internal noise levels in noise-sensitive rooms

- 4.16 Internal noise levels will be dictated by external noise ingress via glazing and ventilators.
- 4.17 The units will be ventilated via trickle ventilators in the external facades with openable windows for the provision of purge ventilation.
- 4.18 Calculations were carried out using facade modelling software in accordance with the “more rigorous” methodology given in BS8233 to establish the sound insulation performance required of the glazing and ventilation to achieve the nominated internal noise criteria in all habitable rooms across the development. The calculations included a 2-3 dBA design margin.
- 4.19 The calculations were carried out based on the following assumptions:
- Two trickle ventilators in bedrooms, and three in living rooms.
 - 4m x 3m x 2.4m bedrooms dimensions, with 1.5m² window area.
 - 5m x 4m x 2.4m living room dimensions, with 2.5m² window area.
- 4.20 The results of the calculations are shown in Appendix 4 and are summarised in Table 2 below.

Table 2 Acoustic Requirements for All Habitable Rooms

Habitable Rooms	Glazing Performance Requirements (inc. Frames)	Ventilator Performance Requirements (in Open Position)
All habitable rooms across the site	27 dB Rw+Ctr	31 dB D _{ne,w} +Ctr

Note The acoustic performance of the glazing systems (including frames) should always be confirmed with the manufacturer before selection for installation.

- 4.21 In summary, the Condition 10 internal noise criteria are predicted to be complied with via the selection of glazing and ventilation systems to achieve the specification given in Table 2.

Part O compliance (noise and overheating)

- 4.22 The above assessment is based on internal noise levels with windows closed (assumed to be “normal” circumstances). However, it is anticipated that residents will open their windows at times for thermal comfort (e.g. to prevent overheating in warmer months). Noise levels in the rooms will increase under these circumstances.

- 4.23 Specific requirements relating to noise and overheating are given in Part O of the Building Regulations (Approved Document O) and states:

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 mitigation strategy should take account of the likelihood that windows will be closed during sleeping hours (11pm to 7am).

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

- a. 40dB LAeq,T, averaged over 8 hours (between 11pm and 7am).
- b. 55dB LAFmax, more than 10 times a night (between 11pm and 7am).

- 4.24 It is important to note that the Part O requirements only apply to bedrooms at night. There are no requirements for other habitable rooms (living rooms, dining rooms, etc).

- 4.25 The noise levels in bedrooms at night with the windows open will vary based on the external night-time noise levels and the size and extent of window opening required to control overheating. The wider the window needs to be open, the lower the sound insulation performance. It is therefore possible to rely on a larger window opening to control overheating on quieter facades. The relationship between external noise levels and window openings for compliance with Part O is summarised in Table 3, based on current industry guidance¹.

Table 3 External Part O Noise Criteria and Allowable Window Opening for Overheating

External Noise Levels outside Bedrooms at Night		Allowable night-time window opening to control overheating
Average Noise Levels (LAeq,8hrs)	Maximum Noise Levels (LAmax) – see Note 1	
≤44 dB	≤59 dB	Fully open (to achieve 13% of the floor area which is typically ~1.3m ²). Ventilators fully open.
≤49 dB	≤64 dB	Open (~4% of floor area e.g. ~0.4m ²) – see Note 2. Ventilators fully open.
≤53 dB	≤68 dB	Partially open (~2% of floor area e.g. ~0.2m ²). Ventilators fully open.
≥54 dB	≥69 dB	Windows to be assumed to be fully closed during the night for the purposes of Part O compliance. Ventilators fully open.
Note 1	Not exceeded more than 10 times per night (between 11pm and 7am)	
Note 2	An opening of 4% of the floor area would comply with the ‘simplified method’ for Part O compliance, if targeted, as the site is in a ‘medium risk’ area.	

¹ These values are taken from guidance published in the document “Guide to Demonstrating Compliance with the Noise Requirements of Approved Document O” Version 1.1 November 2024, by the Association of Noise Consultants. The values are based on a floor area of 10m² and a room height of 2.4m.

- 4.26 The criteria in Table 3 above have been applied to the predicted night-time noise levels from the model to show where open windows can be relied upon for the control of overheating and Part O compliance. The results are shown in Appendix 5.
- 4.27 It can be seen from Appendix 5 that the overheating assessment should account for the likelihood that residents will not open bedroom windows in the 5 northernmost dwellings further than an area equal to 4% of the floor area during the night-time. However, there is no noise-related reason why other windows across the development could not be fully open to address overheating.
- 4.28 The Sweco report, which Condition 10 states should be given due regard, states the following based on guidance from the ANC Acoustic Ventilation and Overheating: Residential Design Guide 2020:
- "[For all but the northernmost dwellings], openable windows for overheating amelioration are likely to be acceptable."*
- 4.29 This conclusion is consistent with the 3D noise modelling results presented in Appendix 3.
- 4.30 The information in Appendix 5 can be provided to the project Energy Assessor to inform the overheating assessment and demonstrate compliance with Part O, accounting for the external noise conditions.

5. CONCLUSIONS

- 5.1 Cass Allen has been instructed by Stonebond Properties (Guildford) Ltd to assess the acoustic design of a new development at Millfields Farm, Rusper, in accordance with Condition 10.
- 5.2 A noise survey was carried out at the site. Noise levels at the site are dictated by road traffic noise emissions (from East Street and Horsham Road) and aircraft from Gatwick Airport.
- 5.3 A 3D noise model of the development was constructed based on the results of a site noise survey. The noise model was used to calculate road traffic noise levels at all facades of the development, including a correction for the forthcoming speed limit reduction on East Street, determined in accordance with CRTN guidance.
- 5.4 Average noise levels from Gatwick Airport were determined using published noise contours and added to the modelling results to determine the total average noise levels at every facade across the development.
- 5.5 An acoustic specification for facade elements and ventilation systems has been developed to comply with BS8233:2014 and WHO noise guidance, in accordance with the requirements of Condition 10. The Condition 10 internal noise criteria are predicted to be complied with via the selection of glazing and ventilation systems to achieve the specification given in Table 2.
- 5.6 An assessment of external noise levels has been carried out in accordance with Approved Document and the ANC Acoustics Ventilation and Overheating: Residential Design Guide 2020. A mark-up has been prepared indicating areas of the development where the external noise levels may affect the overheating mitigation strategy. The information in Appendix 5 can be provided to the project Energy Assessor to inform the overheating assessment and demonstrate compliance with Part O, accounting for the external noise conditions.
- 5.7 The overheating assessment should account for the likelihood that residents will not open their bedroom windows more than 4% of the floor area for the five northernmost units during the night-time. Fully openable windows are expected to be a suitable mitigation strategy for all but the five northernmost units in the development.
- 5.8 It is our view that this report contains the information required to discharge Condition 10.

Appendix 1 Development Layout



Appendix 2 Cass Allen Survey Results (2025)

Survey Summary:

The survey comprised short-term operator attended noise measurements at the site. Noise levels at the site were generally dictated by road traffic on surrounding roads and noise from aircraft taking off from Gatwick.

Survey Period:

28/07/2025

Survey Objectives:

- To identify noise sources that contribute to ambient noise levels at the site;
- To verify the previous noise surveys results

Equipment Used:

Type	Manufacturer	Model	Serial Number
Sound level meter ¹	Brüel & Kjær	2250	3007539
Calibrator	Brüel & Kjær	4231	2115551

Note 1: All sound level meters were calibrated before and after measurement periods and no significant drift in calibration was found to have occurred. The results of the measurements are therefore considered to be representative.

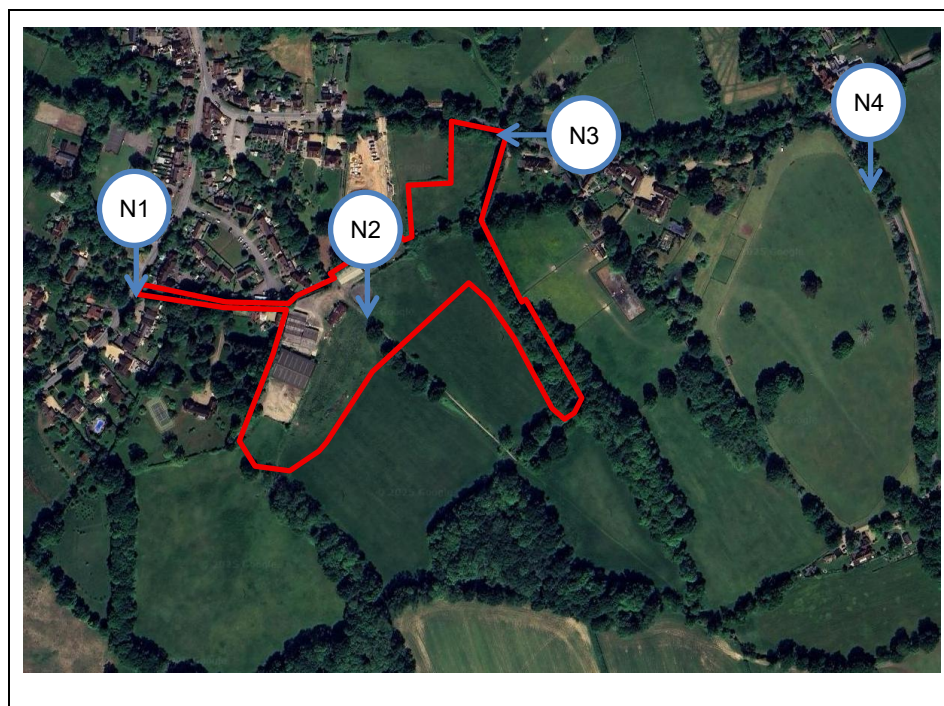
Weather Conditions:

The observed weather conditions were acceptable for acoustic measurement throughout the attended survey periods (low-medium wind speeds and no rain).

Measurement Positions:

Position (refer plan below)	Description
N1	Attended noise monitoring position. 1.5m above ground. Free-field. Direct line of sight to Horsham Road
N2	Attended noise monitoring position. 1.5m above ground. Free-field. Direct line of sight to
N3	Attended noise monitoring position. 1.5m above ground. Free-field. Direct line of sight to East Street
N4	Attended noise monitoring position. 1.5m above ground. Free-field. Direct line of sight to Faygate Lane

Site Plan showing Measurement Positions:



Attended Noise Monitoring Results:

Date	Position	Time	Meas. Length	LAeq, dB	LAmix, dB	LA90, dB	Observations
28/07/2025	N1	15:20	5 mins	63	79	36	Noise dictated by road traffic from Horsham Road and aircraft taking off from Gatwick heading to the west. Loudest level from truck passing the measurement position.
		15:35		66	83	42	
		15:43		66	82	42	
		15:48		63	80	36	
		15:59	17 secs	80	91	55	Noise from a tractor passing the position ~8m away
		16:01	9 secs	68	77	56	Noise from car passing the position ~4m away
		16:03	13 secs	67	77	47	Noise from van passing the position ~4m away
		16:07	22 secs	59	64	54	Noise from aircraft taking off from Gatwick.
	N2	16:15	5 mins	54	70	30	Noise dictated by aircraft taking off from Gatwick and nature sounds (i.e. crickets/insects). Background noise levels dictated by road traffic on East Street.
		16:20		47	65	30	
		16:25		51	67	29	
		16:33	1 min	58	67	45	Noise from aircraft taking off from Gatwick.
		16:36	44 secs	57	65	49	
	N3	16:50	5 mins	68	82	39	Noise dictated by road traffic on East Street and from aircraft flying over. Loudest level from a car passing the measurement position.

Attended Noise Monitoring Results:

Date	Position	Time	Meas. Length	LAeq, dB	LAmx, dB	LA90, dB	Observations
		16:57		67	81	47	Similar to previous measurement. Loudest level was from a car passing the measurement position.
		17:02		69	84	45	Similar to previous measurements. Loudest level was from a truck passing the measurement position.
		17:08	8 secs	68	76	57	Noise from a car passing the measurement position
		17:08		69	77	57	Noise from a car passing the measurement position
		17:09	14 secs	65	70	61	Noise from aircraft taking off from Gatwick.
	N4	17:27	5 mins	66	83	43	Noise dictated by road traffic on Faygate Lane and planes taking off from Gatwick. Background noise can be heard from farm machinery to the south-west and road traffic on Faygate lane. Loudest level from a truck passing the location.
		17:32		65	84	42	
		17:37		63	81	39	
		17:44	5 secs	71	77	59	Noise from a van passing the measurement position ~ 5m away.
		17:45	23 secs	58	65	53	Noise from aircraft taking off from Gatwick.
		17:46	6 secs	71	79	56	Noise from a car passing the measurement position ~3m away.
		17:48	25 secs	60	69	53	Noise from aircraft taking off from Gatwick.

Appendix 3 Modelling Results

Modelling Software:

CADNA/A Version 2025 MR1

Modelled Scenarios:

Day and night-time average noise levels (LAeq,16hr and LAeq,8hr).

Typical night-time maximum noise levels (LAmax).

The modelling results represent the noise levels affecting the development due to traffic.

Noise levels from Gatwick Airport are not included in the model. However, the noise contributions from aircraft have been included in the assessment, as discussed from Paragraph 4.6 to 4.8.

Data inputs:

- Noise survey results
- Topographical data for the site
- Development layout
- CRTN correction for speed reduction on East Street, from 60mph to 30mph

Calculation Algorithms Used:

- Calculation of Road Traffic Noise 1988 – Department of Transport
- ISO 9613-1:1993 Acoustics-Attenuation of sound during propagation outdoors – Part 1: Calculation of the absorption of sound by the atmosphere
- ISO 9613-2:2024 Acoustics-Attenuation of sound during propagation outdoors – Part 2: Engineering method for the prediction of sound pressure levels outdoors

Modelling Printout:



[illegible]

Scenario

Typical free-field night-time maximum noise levels (L_{Amax}).



Appendix 4 Facade Calculations

FACSIM V2.7.10 - MODELLING OF FACADE ACOUSTIC INSULATION TO BS12354-3 and BS8233

PROJECT: Millfields Farm, Rusper

ROOM: East Street Bedroom

VARIANT: Highest Daytime Average Noise Level, 58 dB LAeq,16hr

NOTES: Road traffic noise, and aircraft noise according to published 2024 contours.

Room Dimensions [m] 3.0 X 4.0 X 2.4

Room Volume = 28.8 m3

Partition Area = 9.5 m2

Ventilation ref area = 10.0 m2

Free Field SPL K = 3 dB

SELECT Free Field or Façade SPL for model input >>>

EXTERNAL SPECTRUM (A weighted)

Direct input - Free Field SPL (A weighted octave bands) dB ---->

-

 No data

Road traffic spectrum (according to BS 8233:1999 section 6)

58.0

39.8 43.9 47.4 50.8 54.0 51.2 46.0 Reference spectrum

REVERBERATION TIME

DIRECT INPUT ----> No data

EQUAL RT for all bands ---->

0.5 0.5 0.5 0.5 0.5 0.5 0.5

 Default - RT set to 0.5s

Façade Element	Area [m2]	SRI dB to BS EN ISO 140-3:1995							Rw	C	Ctr
Wall 1 Typical - 102mm brick/50mm cavity/100mm block	8.0	36	45	44	47	57	67	77	1%	54	-4
ATTENUATION											
Wall 2 WALLS		0	0	0	0	0	0	0	0%		
ATTENUATION											
Wall 3 WALLS		0	0	0	0	0	0	0	0%		
ATTENUATION											
Glazing 1 27 dB Rw + Ctr - Standard Thermal Double Glazing	1.5	20	20	19	27	38	37	40	24%	27 (inc Ctr)	-
ATTENUATION											
Glazing 2 GLAZING		0	0	0	0	0	0	0	0%		
ATTENUATION											
Glazing 3 GLAZING		0	0	0	0	0	0	0	0%		
ATTENUATION											
Roof ROOF / FLOOR		0	0	0	0	0	0	0	0%		
ATTENUATION											
Resultant composite Façade SRI		27	28	27	34	45	45	48			
Resultant SPL inside room excluding ventilators dB		26.7	16	19	24	20	12	9	24%		

Ventilator Type	Num	D _{nae} dB to BS EN 20140-10:1992							D _{new}	C	Ctr
Ventilation Hit and miss trickle (4000mm ²) e.g. Titen Tärm vent XS13	2	30	35	35	36	34	29	33	75%	32	-1
ATTENUATION											
Ventilation VENTS		0	0	0	0	0	0	0	0%		
ATTENUATION											
Resultant SPL inside room through ventilators dB		31.6	16	15	18	21	26	28	19	76%	
Total SPL inside room		32.8	19	21	25	23	27	28	19		

Element contribution to total internal noise level

30

25

20

15

10

5

0

63

125

250

500

1000

2000

4000

Frequency (Hz)

Wall1

Wall2

Wall3

Glaz1

Glaz2

Glaz3

Roof

Vents1

Vents2

Total

PROJECT: Millfields Farm, Rusper
 ROOM: East Street Bedroom
 VARIANT: Highest Night-time Average Noise Level, 50 dB LAeq,8hr
 NOTES: Road traffic noise, and aircraft noise according to published 2024 contours.

Room Dimensions [m] $\begin{matrix} W \\ 3.0 \end{matrix}$ X $\begin{matrix} L \\ 4.0 \end{matrix}$ X $\begin{matrix} H \\ 2.4 \end{matrix}$

Room Volume = 28.8 m³
 Partition Area = 9.5 m²
 Ventilation ref area = 10.0 m²
 Free Field SPL K = 3 dB

SELECT Free Field or Façade SPL for model input >>> ☐

NOTES:

EXTERNAL SPECTRUM (A weighted)

Direct input - Free Field SPL (A weighted octave bands) dB ---->	-							No data
Road traffic spectrum (according to BS 8233:1999 section 6)	50.0							
		31.8	35.9	39.4	42.8	46.0	43.2	38.0
								Reference spectrum

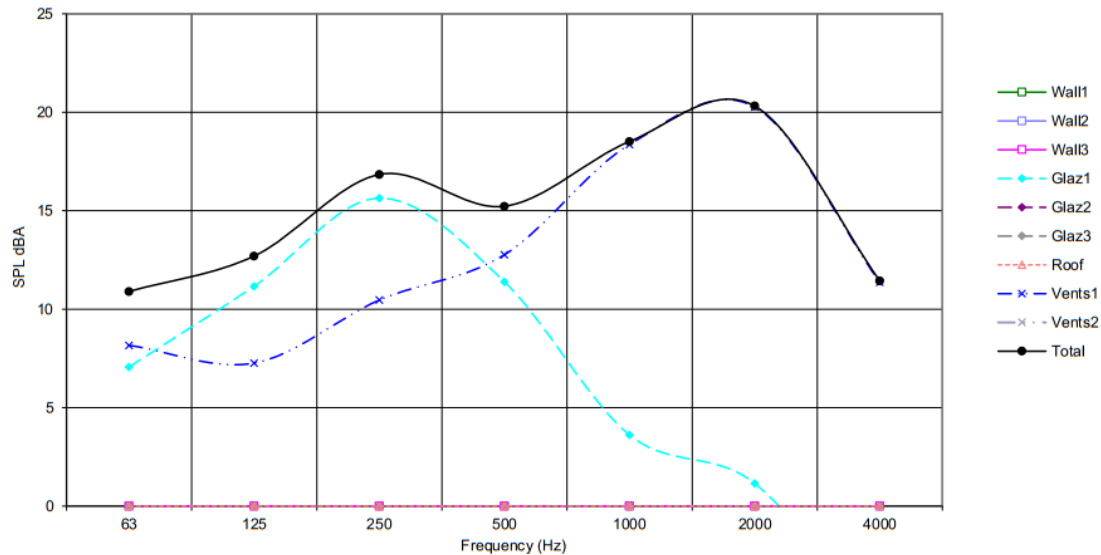
REVERBERATION TIME

DIRECT INPUT ---->								No data
EQUAL RT for all bands ---->								
	0.5	0.5	0.5	0.5	0.5	0.5	0.5	Default - RT set to 0.5s

Façade Element	Area [m ²]	SRI dB to BS EN ISO 140-3:1995								Rw	C	Ctr
Wall 1 Typical - 102mm brick/50mm cavity/100mm block	8.0	36	45	44	47	57	67	77	0%	54	0	-4
ATTENUATION												
Wall 2 WALLS		0	0	0	0	0	0	0	0%			
ATTENUATION												
Wall 3 WALLS		0	0	0	0	0	0	0	0%			
ATTENUATION												
Glazing 1 27 dB Rw + Ctr - Standard Thermal Double Glazing	1.5	20	20	19	27	38	37	40	23%	27 (inc Ctr)	-	-
ATTENUATION												
Glazing 2 GLAZING		0	0	0	0	0	0	0	0%			
ATTENUATION												
Glazing 3 GLAZING		0	0	0	0	0	0	0	0%			
ATTENUATION												
Roof ROOF / FLOOR		0	0	0	0	0	0	0	0%			
ATTENUATION												
Resultant composite Façade SRI		27	28	27	34	45	45	48				
Resultant SPL inside room excluding ventilators dB		18.7	8	11	16	12	4	1	-6	24%		

Ventilator Type	Num	D _{wp} dB to BS EN 20140-10:1992								Dnew	C	Ctr
Ventilation Hit and miss trickle (4000mm ²) e.g. Titon Trimvent XS13	2	30	35	35	36	34	29	33	75%	32	0	-1
ATTENUATION												
Ventilation VENTS		0	0	0	0	0	0	0	0%			
ATTENUATION												
Resultant SPL inside room through ventilators dB		23.6	8	7	10	13	18	20	11	76%		
Total SPL inside room		24.8	11	13	17	15	19	20	11			

Element contribution to total internal noise level



PROJECT: Millfields Farm, Rusper
 ROOM: East Street Bedroom
 VARIANT: Highest Typical Night-time Maximum Noise Level, 58 dB LAmax
 NOTES:

Room Dimensions [m] $\begin{matrix} W \\ 3.0 \end{matrix}$ X $\begin{matrix} L \\ 4.0 \end{matrix}$ X $\begin{matrix} H \\ 2.4 \end{matrix}$

Room Volume = 28.8 m³
 Partition Area = 9.5 m²
 Ventilation ref area = 10.0 m²
 Free Field SPL K = 3 dB

SELECT Free Field or Façade SPL for model input >>> ☐ Free Field ☒ Façade

NOTES:

EXTERNAL SPECTRUM (A weighted)

Direct input - Free Field SPL (A weighted octave bands) dB ---->

dBA	63	125	250	500	1000	2000	4000
58.0	30.9	36.6	40.9	50.2	55.7	51.0	41.5

Road traffic spectrum (according to BS 8233:1999 section 6)

30.9	36.6	40.9	50.2	55.7	51.0	41.5
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Direct input

REVERBERATION TIME

DIRECT INPUT ---->

No data

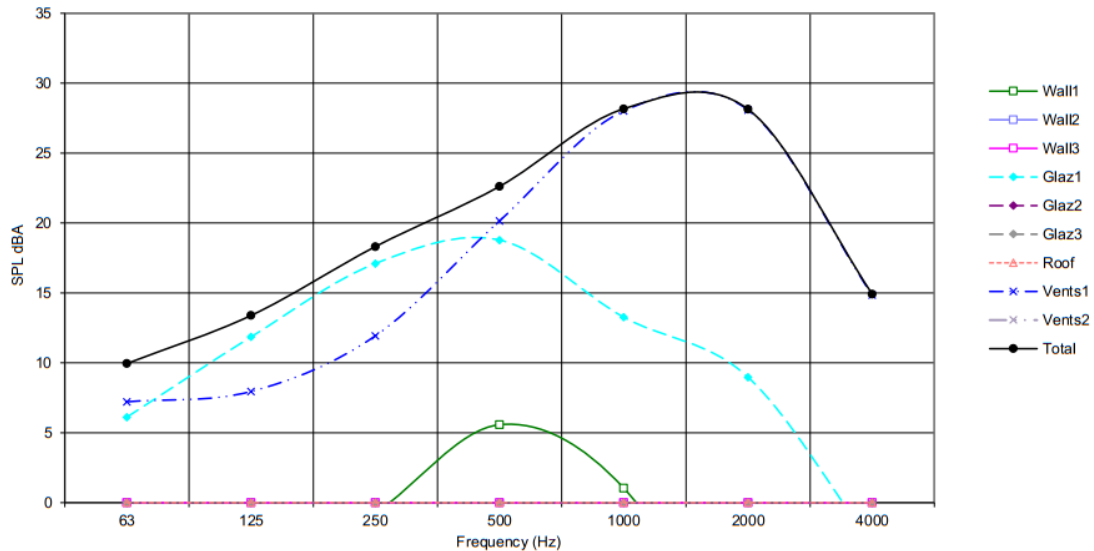
EQUAL RT for all bands ---->

Default - RT set to 0.5s

Façade Element	Area [m ²]	SRI dB to BS EN ISO 140-3:1995								Rw	C	Ctr
Wall 1 Typical - 102mm brick/50mm cavity/100mm block	8.0	36	45	44	47	57	67	77	0%	54	0	-4
ATTENUATION												
Wall 2 WALLS		0	0	0	0	0	0	0	0%			
ATTENUATION												
Wall 3 WALLS		0	0	0	0	0	0	0	0%			
ATTENUATION												
Glazing 1 27 dB Rw + Ctr - Standard Thermal Double Glazing	1.5	20	20	19	27	38	37	40	11%	27 (inc Ctr)	-	-
ATTENUATION												
Glazing 2 GLAZING		0	0	0	0	0	0	0	0%			
ATTENUATION												
Glazing 3 GLAZING		0	0	0	0	0	0	0	0%			
ATTENUATION												
Roof ROOF / FLOOR		0	0	0	0	0	0	0	0%			
ATTENUATION												
Resultant composite Façade SRI		27	28	27	34	45	45	48				
Resultant SPL inside room excluding ventilators dB		22.6	7	12	17	19	14	9	11%			

Ventilator Type	Num	D _{ref} dB to BS EN 20140-10:1992								D _{new}	C	Ctr
Ventilation HR and miss trickle (4000mm ²) e.g. Titon Trimmvent XS13	2	30	35	35	36	34	29	33	89%	32	0	-1
ATTENUATION												
Ventilation VENTS		0	0	0	0	0	0	0	0%			
ATTENUATION												
Resultant SPL inside room through ventilators dB		31.6	7	8	12	20	28	28	89%			
Total SPL inside room		32.1	10	13	18	23	28	28	15			

Element contribution to total internal noise level



PROJECT:	Millfields Farm, Rusper	Room Dimensions [m]	W	L	H
ROOM:	East Street Living Room		4.0	5.0	2.4
VARIANT:	Highest Daytime Average Noise Level, 58 dB LAeq	Room Volume =	48.0 m3		
NOTES:	Road traffic noise, and aircraft noise according to published 2024 contours.	Partition Area =	17.5 m2		
		Ventilation ref area =	10.0 m2		
		Free Field SPL K =	3 dB		

SELECT Free Field or Façade SPL for model input >>> ☐ ☒

EXTERNAL SPECTRUM (A weighted)

dBA	63	125	250	500	1000	2000	4000
Direct input - Free Field SPL (A weighted octave bands) dB ---->	-						
Road traffic spectrum (according to BS 8233:1999 section 6)	58.0						
	39.8	43.9	47.4	50.8	54.0	51.2	46.0

Reference spectrum

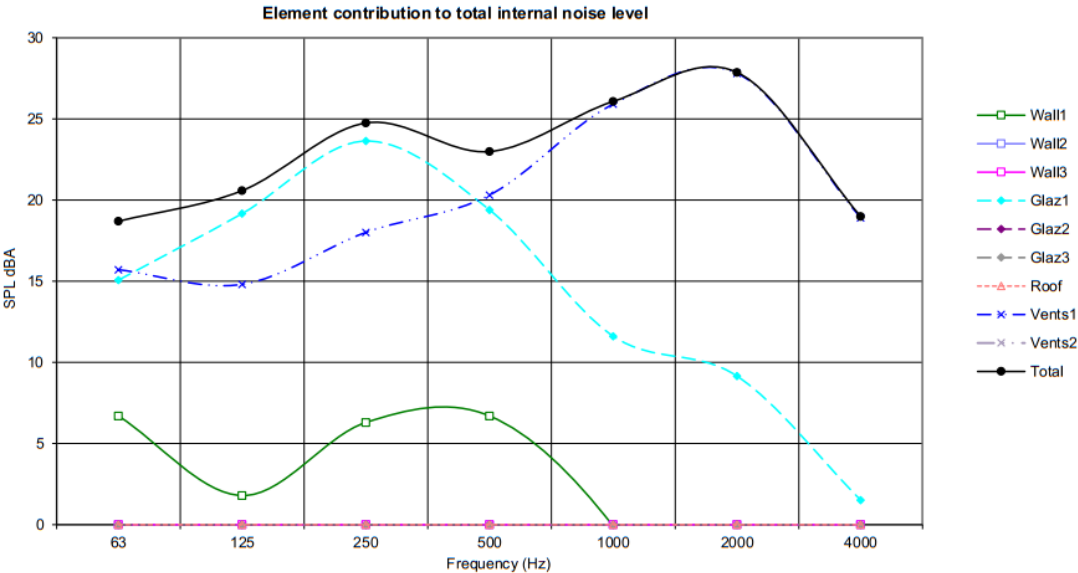
REVERBERATION TIME

DIRECT INPUT ---->							
EQUAL RT for all bands ---->	0.5	0.5	0.5	0.5	0.5	0.5	0.5

Default - RT set to 0.5s

Façade Element	Area [m2]	SRI dB to BS EN ISO 140-3:1995								Rw	C	Ctr
Wall 1 Typical - 102mm brick/50mm cavity/100mm block	15.0	36	45	44	47	57	67	77	1%	54	0	-4
ATTENUATION												
Wall 2 WALLS		0	0	0	0	0	0	0	0%			
ATTENUATION												
Wall 3 WALLS		0	0	0	0	0	0	0	0%			
ATTENUATION												
Glazing 1 27 dB Rw + Ctr - Standard Thermal Double Glazing	2.5	20	20	19	27	38	37	40	26%	27 (inc Ctr)	-	-
ATTENUATION												
Glazing 2 GLAZING		0	0	0	0	0	0	0	0%			
ATTENUATION												
Glazing 3 GLAZING		0	0	0	0	0	0	0	0%			
ATTENUATION												
Roof ROOF / FLOOR		0	0	0	0	0	0	0	0%			
ATTENUATION												
Resultant composite Façade SRI		28	28	27	35	46	46	48				
Resultant SPL inside room excluding ventilators dB		26.7	16	19	24	20	12	9	2	27%		

Ventilator Type	Num	D _{ref} dB to BS EN 20140-10:1992								D _{new}	C	Ctr
Ventilation Hit and miss trickle (4000mm ²) e.g. Titon Trimvent XS13	3	30	35	35	36	34	29	33	73%	32	0	-1
ATTENUATION												
Ventilation VENTS		0	0	0	0	0	0	0	0%			
ATTENUATION												
Resultant SPL inside room through ventilators dB		31.2	16	15	18	20	26	28	19	73%		
Total SPL inside room		32.5	19	21	25	23	26	28	19			



Appendix 5 Part O Acoustic Requirements for Bedrooms at Night



Outside-to-inside noise reduction requirement	Part O Requirement for Bedrooms
4 dB	Energy assessment (e.g. TM59) to show that bedrooms will not overheat at night with windows fully open (e.g. 13% of floor area, which is typically around 1.3m ²) and ventilators fully open.
9 dB	Energy assessment (e.g. TM59) to show that bedrooms will not overheat at night with windows open (e.g. 4% of floor area, which is typically around 0.4m ²) and ventilators fully open.
13 dB	Energy assessment (e.g. TM59) to show that bedrooms will not overheat at night with windows partially open (e.g. ~2% of floor area, which is typically around 0.2m ²) and ventilators fully open.
>13 dB	Energy assessment (e.g. TM59) to show that bedrooms on these facades will not overheat at night with windows fully closed and ventilators fully open.

- Note 1** ADO requirements only apply to bedrooms during night-time hours (23:00-07:00)
- Note 2** The window open area is specified above as an actual open area, not 'equivalent open area' and the values may therefore need to be converted as part of the overheating assessment.
- Note 3** The mark-up specifies the total openable area per room and not per facade; if a bedroom has multiple facades containing windows, then the most stringent criteria should apply.



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