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30 West Street, Horsham, West Sussex RH12 1PB

Noise Impact Assessment



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ii. Document History

Document Ref	Revision	Title	Date	Created By	Authorised By	Comments
AC20207.00.00	0	Noise Impact Assessment	23/04/2026	BG	DG	First draft
AC20207.01.01	1	Noise Impact Assessment	11/05/2026	DG	BG	Updated following architects comments

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1. Introduction

Trace Surveys Ltd (Trace) was instructed by Ganco (The Client) to carry out a baseline environmental noise survey at 30 West Street, Horsham, West Sussex RH12 1PB (The Property).

Development is being proposed at The Property. It is understood that Ganco is leading the overall scheme, which involves the full redevelopment of a commercial building into a mixed-use site comprising both residential and commercial uses.

An unattended environmental noise survey was conducted to determine the prevailing ambient and background noise levels surrounding the site. The survey data shall form the basis of subsequent assessments.

2. Relevant Standards and Guidance

The primary standards used in the preparation of this document are as follows:

- British Standard (BS) 7445:2003 *Part 2 Guide to the acquisition of data pertinent to land use*
- British Standard (BS) 8233:2014 *Guidance on sound insulation and noise reduction for buildings*
- Noise Policy Statement for England (NPSE)
- Professional Practice Guidance on Planning & Noise (ProPG)

3. Competency

Noise monitoring and subsequent assessment has been carried out by Ben Groves BSc (Hons) MSc MIOA. Ben has been involved with acoustic consultancy, sound insulation performance specification and plant noise assessments for over a decade. Ben has a Master's degree in Acoustics from the University of Salford and is a corporate member of the Institute of Acoustics (IOA).

4. Site Description

The Property comprises a large, centrally located high-street building situated within Horsham town centre. The building is arranged over three storeys. The principal elevation fronts West Street, a pedestrianised retail thoroughfare forming the northern boundary. To the rear and southern elevation, the building incorporates an additional storey.

The Property is administered by Horsham District Council (West Sussex).

Figure 4.1 shows the site location.

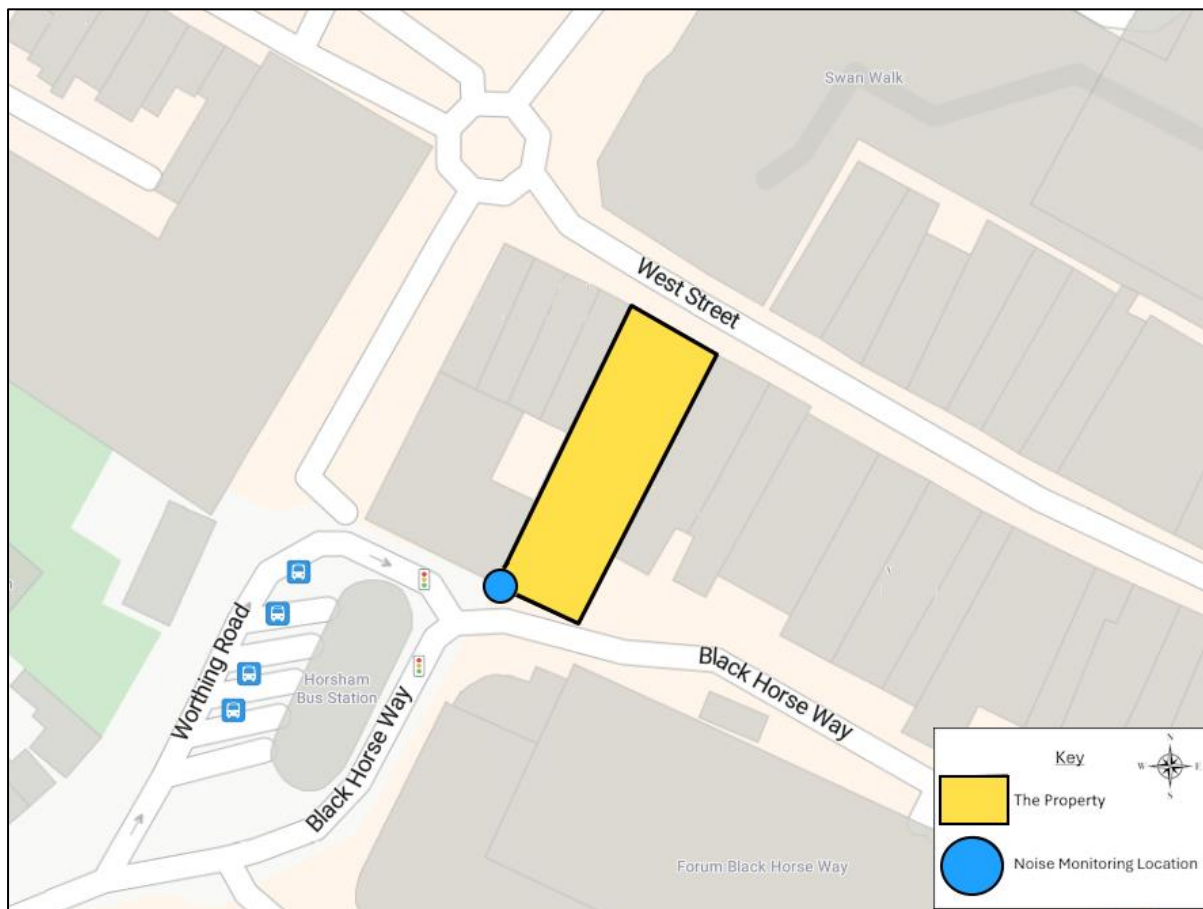


Figure 4.1: Site location showing the noise monitoring location.

5. Environmental Noise Survey

Trace conducted an unattended acoustic survey on 16–17 April 2026 to determine the prevailing sound climate, including maximum noise levels and background sound conditions.

The observed ambient sound environment comprised continuous traffic and bus station activity. Peak levels could be attributed to sirens from emergency vehicles.

Observations of both the front and rear façades indicated that the pedestrianised shopping precinct to the front was relatively quiet, whereas higher activity noise levels were observed at the rear façade overlooking the bus station, expected to impact the multi-storey residential units of the property.

The property was vacant at the time of the survey, with internal building works ongoing. Scaffolding was erected along the rear façade from ground level up to roof level. A microphone position on the first-storey scaffold was considered suitable and representative of the worst-affected façade. The microphone location is shown in Figure 4.1 above.

The microphone was fixed in a free-field position and set to log and store consecutive 15-minute L_{Aeq} , L_{Amax} , and L_{A90} sound levels. During the noise survey, the microphone was protected by a weather-protected windshield. Measurements were undertaken in general accordance with BS 7445-2:2003



'Description and measurement of environmental noise – Part 2: Guide to the acquisition of data pertinent to land use'.

The survey weather conditions were bright and dry, with a daytime maximum temperature of 17°C and an overnight minimum of 9 °C. These weather conditions are not expected to have adversely affected the acquisition of acoustical data.

5.1. Instrumentation

The instrumentation used during the testing is shown in Table 5.1:. The sound level meter had calibration checks before and after the measurement surveys to generate a calibration level of 94 dB at 1 kHz. The equipment calibration was verified before and after the survey and no significant calibration drift was observed (< 0.5 dB). The sound level meter used during the survey was compliant with the Class 1 standard as defined by BS EN 61672-1:2013 *Electroacoustics. Sound level meters. Specifications.*

Description	Name	Serial Number	Calibration Due
Sound Level Meter	Svantek 971A	154266	03/12/2026
Microphone	Aco Pacific 7152	92800	03/12/2026
Preamplifier	Svantek SV18A	155314	03/12/2026
Calibrator	Rion Nc-75	34935217	11/09/2026

Table 5.1: Equipment Details

All noise equipment has been calibrated to traceable standards within the preceding two years and the acoustic calibrator within the preceding 12 months. Calibration certificates for all equipment used in the survey are available upon request.



5.2. Survey Results

The results of the unattended survey are presented in Tables 5.2–5.4. The L_{A90} background sound level has been established using the most commonly occurring $L_{A90,15min}$ sound level during night-time, and the most commonly occurring $L_{A90,1hr}$ period during the daytime. The L_{Amax} level is the 90th percentile of the measured $L_{Amax,15min}$ sound levels over the full monitoring period. $L_{Aeq,15min}$ sound levels have been logarithmically averaged to provide full daytime (16-hour) and night-time (8-hour) sound levels.

Measurement period (T)	Measured sound levels (dB)			
	$L_{Aeq,T}$	$L_{Amax,T}$	$L_{A10,T}$	$L_{A90,T}$
07:00–23:00	60	82	61	47
23:00–07:00	58	80	52	36

Table 5.2: Time-averaged free field sound levels for the monitoring period

Table 5.2 shows that the daytime and night-time average sound levels during the survey monitoring period were 63 dB and 61 dB $L_{Aeq,T}$, respectively. Night-time typical maximum sound levels were 83 dB $L_{Amax,15min}$.

Measurement period (T)	Range of sound levels (dB)			
	$L_{Aeq,T}$	$L_{Amax,T}$	$L_{A10,T}$	$L_{A90,T}$
07:00–23:00	48 - 69	66 - 99	49 - 68	36 - 55
23:00–07:00	35 - 73	47 - 107	38 - 67	31 - 51

Table 5.3: Time-averaged sound level ranges for the monitoring period

Table 5.3 shows a summary of the range of sound levels seen during the entire monitoring period. Daytime and night-time $L_{Aeq,15min}$ sound level ranges were 48–69 dB and 35–73 dB, respectively.

A graph produced to display the weekday prevailing ambient and background noise levels surrounding the site can be seen in the appendices of this report.

6. External Façade Requirements

British Standard (BS) 8233:2014 *Guidance on sound insulation and noise reduction for buildings*, provides guidance on the acceptable levels of noise within buildings of different types. These levels are based on World Health Organisation (WHO) guidelines.

In the case of residential developments, BS 8233:2014 recommends ambient noise levels in living accommodation. These recommendations are reproduced in Table 6.1 below.

Activity	Location	Daytime 07:00-23:00	Night-time 23:00-07:00
Resting	Living room	35 dB $L_{Aeq,16hour}$	-
Dining	Dining room/area	40 dB $L_{Aeq,16hour}$	-
Sleeping (daytime resting)	Bedroom	35 dB $L_{Aeq,16hour}$	30 dB $L_{Aeq,8hour}$

Table 6.1 Indoor ambient noise levels for dwellings



A specific maximum L_{AFmax} value is not given by BS 8233:2014. Based on commonly applied criteria, we propose that for bedrooms at night, individual noise events should not usually exceed 45 dB L_{AFmax} .

7. External Façade Assessments

7.1. External Noise Levels

This section provides an assessment of the suitability of the site for residential use with respect to noise.

Based on the measured sound levels presented in Section 5, an assessment has been undertaken with reference to BS 8233:2014 to determine suitable façade sound insulation requirements for the proposed residential accommodation.

The assessment demonstrates that, with appropriate glazing and acoustically attenuated ventilation, internal ambient noise levels within the proposed dwellings can achieve the recommended criteria contained within BS 8233:2014.

7.2. Façade (and Glazing) specification

Using the façade noise levels presented in Section 5, calculations have been completed to support the selection of glazing and ventilation for building areas exposed to local transportation noise sources. The calculations consider the free-field equivalent sound level, the sound reduction index of the glazing and ventilation elements, the sound reduction of the façade, and the internal acoustics of a typical domestic room. Based on these calculations, presented for reference in Appendix B of this report, façade elements and ventilation can be specified.

It is assumed that the non-glazed areas of any façade systems may incorporate sufficient acoustic treatment such that the glazing remains the weakest path for external noise intrusion. As such, the acoustic performance of the glazing will be the most critical element in determining the overall sound insulation performance of the external façade.

Table 7.1 presents the sound insulation performance specifications recommended for elements of the building fabric system. Typical constructions that achieve the internal ambient noise criteria in BS 8233:2014 are also provided.

The proposed ventilation strategy is based on the use of acoustically attenuated background ventilators (trickle vents) incorporated within the façade design. The selected ventilators should provide sufficient acoustic attenuation such that the overall façade performance achieves the internal ambient noise criteria contained within BS 8233:2014.

Any selected ventilation products should also provide ventilation performance suitable to satisfy the requirements of Approved Document F.



Façade Element	Living Rooms and Bedrooms	
	Sound Insulation Performance, dB R _w	Example Constructions
External wall Fabric	50	Brick and block external wall (BS 8233 - 2014)
Glazing - Living Rooms	29	6/6/4 Glazing Pilkington
Glazing - Bedrooms	37	6/6/10 Laminated Pilkington
These values have been based on: Ventilation – Acoustically attenuated trickle ventilators (minimum D _{n,e,w} to be confirmed by manufacturer selection). Rooms – 100 m ³ room volume with 15 m ² external façade and a 2 m ² window. Calculations were carried out using a reverberation time (RT60) of 0.5 seconds across all frequency bands.		

Table 7.1 Building envelope proposed construction.

As shown in Table 7.1, to meet the requirements of BS 8233:2014, a glazing system achieving a rating of at least 29 dB R_w is required for living rooms and at least 37 dB R_w for bedrooms.

The use of openable windows is likely to lead to excessive internal ambient noise levels. It is therefore proposed that the ventilation requirements of Approved Document F be satisfied with the use of a attenuated trickle ventilation. (Approved Document F System 4).

Care should be taken to ensure that any selected background ventilators achieve an acoustic performance commensurate with the glazing specification, such that the overall façade sound insulation performance is maintained.



8. Conclusion

Trace Surveys Ltd (Trace) was instructed by Ganco (The Client) to carry out a baseline environmental noise survey at 30 West Street, Horsham, West Sussex RH12 1PB (The Property).

Development is being proposed at The Property, which involves the full redevelopment of a commercial building into a mixed-use site comprising both residential and commercial uses.

This noise survey has been prepared to support the proposed mixed-use commercial and residential development submitted under Horsham District Council (West Sussex) reference DC260146.

The unattended environmental noise survey was undertaken to establish representative daytime and night-time ambient and background sound levels in the vicinity of the site.

An assessment has been undertaken with reference to BS 8233:2014, the Noise Policy Statement for England, and relevant professional guidance. The results demonstrate that, with appropriate façade design, internal ambient noise levels within the proposed dwellings can be controlled to achieve the recommended criteria for living rooms and bedrooms during both daytime and night-time periods.

Based on the measured external noise levels, a glazing specification achieving a rating of at least 29 dB R_w is required for living rooms and at least 37 dB R_w for bedrooms, together with appropriately specified acoustically attenuated background ventilators to satisfy the ventilation requirements of Approved Document F.

The assessment confirms that the site is suitable for residential use in noise terms, and that the proposed development can be designed to provide acceptable internal living conditions for future occupants. Subject to the implementation of the recommended façade and ventilation specifications, the development is not expected to give rise to significant adverse noise effects and is therefore considered acceptable from an acoustic perspective.

Appendix A: Figures

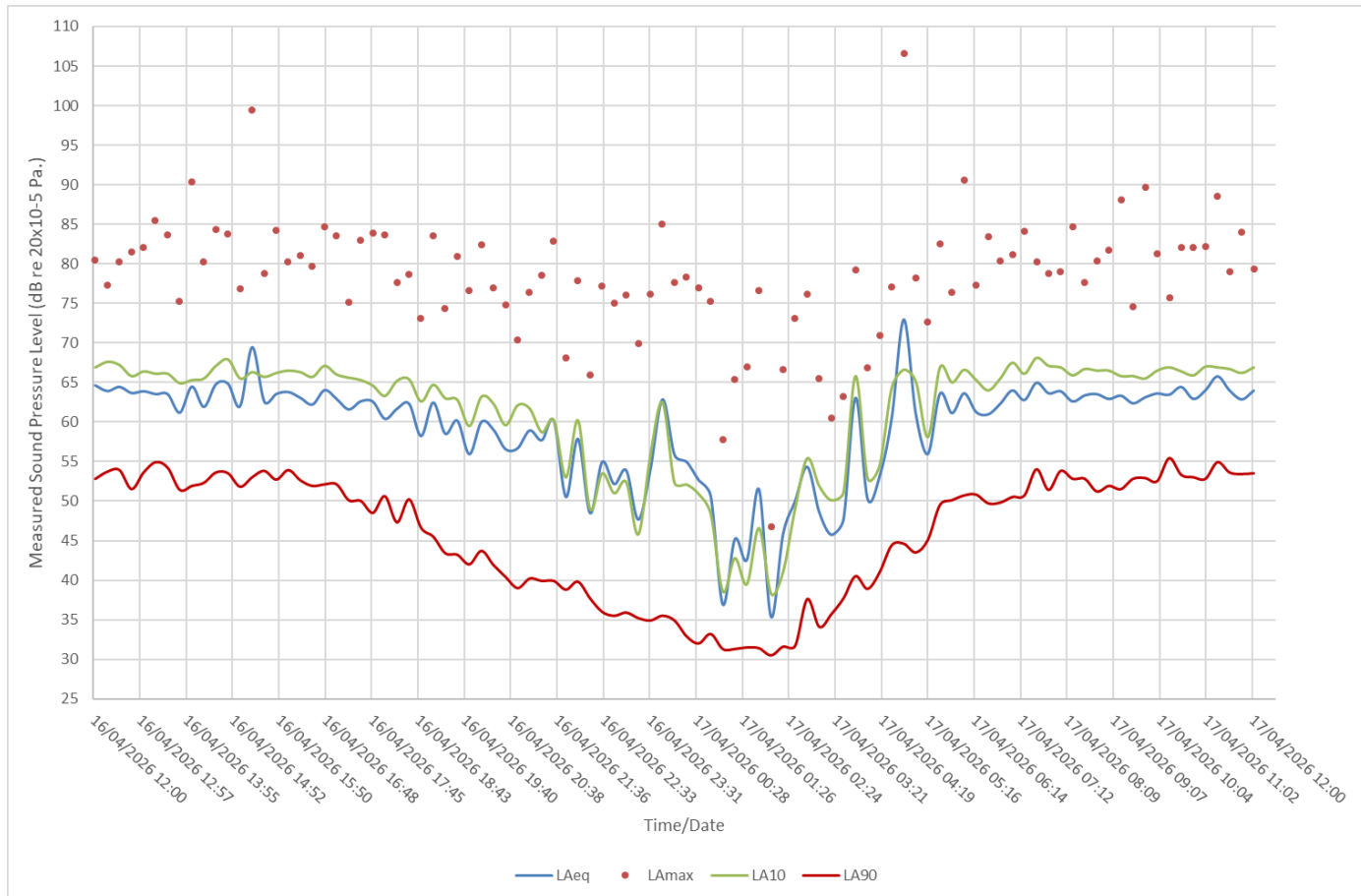


Figure A.1: Survey Results for the weekday 24-hour monitoring period



Appendix B: Tables



Project	AC2020207 - 30 West Street Horsham West Sussex RH12 1PB							Date		24/04/2026	
Façade	All							By		BG	
Room	Living Room							Checked		DG	
Symbol	Description	Ref	Units	Single Figure Rating							
S _f	Total façade area of room		m ²	15.0							
S _{wi}	Area of windows in façade		m ²	2.0							
S _{ew}	Area of external wall in façade		m ²	13.0							
S _{rr}	Area of ceiling exposed to external noise		m ²	0.0							
S	Total area of elements through which sound enters room		m ²	15.0							
A ₀	Reference absorption area given in BS EN 20140-10		m ²	0.0							
	A-weighted free-field equivalent sound pressure level at measurement position		dB								
	Total propagation and angle of view correction from measurement to façade		dB	0.0	Octave Band Centre Frequency, Hz						
L _{Aq,ff}	A-weighted free-field equivalent sound pressure level outside façade		dB	63.0	125	250	500	1000	2000		
L _{TRAFFIC}	Normalised road traffic noise spectrum derived from BS1793-3		dB								
L _{eq,ff}	Linear free-field equivalent sound pressure level outside façade		dB	62.7	58	57	55	55	53		
D _{n,e}	Brick and block external wall (BS8233 - 2014)	9	dB		40	44	45	51	56		
R _{wi}	Sound reduction index of windows - 4/6/4 Glazing Pilkington	110	dB		21	17	25	35	37		
R _{ew}	Sound reduction index of the external wall - Brick and block external wall (BS8233 -	9	dB		40	44	45	51	56		
R _{rr}	Sound reduction index of the roof/ceiling	94	dB		28	34	40	45	49		
α	Room average alpha co-efficients (acoustically hard room)		-								
S _{room}	Room surface area		m ²								
A	Equivalent absorption area of room		m ²		9	9	9	9	9		
L _{eq,2}	Linear Internal reverberant sound pressure level in room		dB	38.4	33	36	27	17	13		
	A-weighting Network				-16	-9	-3	0	1		
L _{eq,3}	A-weighted internal reverberant sound pressure level in room		dB(A)	29.5	17.3	27.3	23.6	16.9	13.9		
	Internal Criteria		dB(A)	35.0							
	Excess over criteria		dB(A)								

Table B.1 Daytime internal ambient sound levels



Project	AC2020207 - 30 West Street Horsham West Sussex RH12 1PB	Date	24/04/2026
Façade	All	By	BG
Room	Night-time Bedroom	Checked	DG

Symbol	Description	Ref	Units	Single Figure Rating					
S_f	Total façade area of room		m ²	15.0					
S_{wi}	Area of windows in façade		m ²	2.0					
S_{ew}	Area of external wall in façade		m ²	13.0					
S_{rr}	Area of ceiling exposed to external noise		m ²	0.0					
S	Total area of elements through which sound enters room		m ²	15.0					
A_0	Reference absorption area given in BS EN 20140-10		m ²	0.0					
	A-weighted free-field equivalent sound pressure level at measurement position		dB						
	Total propagation and angle of view correction from measurement to façade		dB	0.0	Octave Band Centre Frequency, Hz				
$L_{Aq,ff}$	A-weighted free-field equivalent sound pressure level outside façade		dB	58.0	125	250	500	1000	2000
$L_{TRAFFIC}$	Normalised road traffic noise spectrum derived from BS1793-3		dB						
$L_{eq,ff}$	Linear free-field equivalent sound pressure level outside façade		dB	62.1	56	57	54	54	51
$D_{n,e}$	Brick and block external wall (BS8233 - 2014)	9	dB		40	44	45	51	56
R_{wi}	Sound reduction index of windows - 6/6/10 Laminated Pilkington	118	dB		24	25	33	39	40
R_{ew}	Sound reduction index of the external wall - Brick and block external wall (BS8233 -	9	dB		40	44	45	51	56
R_{rr}	Sound reduction index of the roof/ceiling	94	dB		28	34	40	45	49
α	Room average alpha co-efficients (acoustically hard room)		-						
S_{room}	Room surface area		m ²						
A	Equivalent absorption area of room		m ²		9	9	9	9	9
$L_{eq,2}$	Linear Internal reverberant sound pressure level in room		dB	32.6	30	29	19	12	8
	A-weighting Network				-16	-9	-3	0	1
$L_{eq,3}$	A-weighted internal reverberant sound pressure level in room		dB(A)	22.9	13.5	20.1	16.4	12.4	8.8
	Internal Criteria		dB(A)	30.0					
	Excess over criteria		dB(A)						

Table B.2 Night-time internal ambient sound levels



Project	AC2020207 - 30 West Street Horsham West Sussex RH12 1PB				Date	24/04/2026
Façade	All				By	BG
Room	Night-time Bedroom Max				Checked	DG

Symbol	Description	Ref	Units	Single Figure Rating					
S_f	Total façade area of room		m ²	15.0					
S_{wi}	Area of windows in façade		m ²	2.0					
S_{ew}	Area of external wall in façade		m ²	13.0					
S_{rr}	Area of ceiling exposed to external noise		m ²	0.0					
S	Total area of elements through which sound enters room		m ²	15.0					
A_0	Reference absorption area given in BS EN 20140-10		m ²	0.0					
	A-weighted free-field equivalent sound pressure level at measurement position		dB						
	Total propagation and angle of view correction from measurement to façade		dB	0.0	Octave Band Centre Frequency, Hz				
$L_{Aq,ff}$	A-weighted free-field equivalent sound pressure level outside façade		dB	80.0	125	250	500	1000	2000
$L_{TRAFFIC}$	Normalised road traffic noise spectrum derived from BS1793-3		dB						
$L_{eq,ff}$	Linear free-field equivalent sound pressure level outside façade		dB	83.9	78	79	76	75	73
$D_{n,e}$	Brick and block external wall (BS8233 - 2014)	9	dB		40	44	45	51	56
R_{wi}	Sound reduction index of windows - 6/6/10 Laminated Pilkington	118	dB		24	25	33	39	40
R_{ew}	Sound reduction index of the external wall - Brick and block external wall (BS8233 -	9	dB		40	44	45	51	56
R_{rr}	Sound reduction index of the roof/ceiling	94	dB		28	34	40	45	49
α	Room average alpha co-efficients (acoustically hard room)		-						
S_{room}	Room surface area		m ²						
A	Equivalent absorption area of room		m ²		9	9	9	9	9
$L_{eq,2}$	Linear Internal reverberant sound pressure level in room		dB	54.4	51	51	41	34	30
	A-weighting Network				-16	-9	-3	0	1
$L_{eq,3}$	A-weighted internal reverberant sound pressure level in room		dB(A)	44.7	35.3	41.9	38.2	34.3	30.7
	Internal Criteria		dB(A)	45.0					
	Excess over criteria		dB(A)						

Table B.3 Night-time internal L_{Amax} sound levels



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