AIRTIGHT
BUILDING SOLUTIONS LTD
ACOUSTIC DIVISION

External Noise Impact Assessment

Report in Accordance with BS8233:2014

SITE ADDRESS:
60 Long Lane, Ickenham, UB10 8SZ

CLIENT PERFORMED FOR:
Raj Bancil

Report Reference:
ABSLNIA250926-01

TECHNICIAN:

NILAV BABARIYA | A.M.I.O.A.

BEng (Hons) Civil Engineering | Technical Director: Building Compliance

Nilav@airtightbuildingsolutions.co.uk

+44 (0) 7482 315963

AIRTIGHT
BUILDING SOLUTIONS LTD

www.airtightbuildingsolutions.co.uk

Revision	Description	Issued by	Date
-	First Issue	Nilav Babariya	25/09/26

DISCLAIMER

The findings and interpretations presented in this report represent Airtight Building Solutions Ltd's best technical assessment of the external noise levels measured at the time of the survey, with reference to BS 8233:2014 and the agreed scope of work. Noise levels are inherently variable and may be influenced by traffic, weather, aircraft, railway activity, commercial operations, occupants and other temporary or intermittent sources. The results therefore apply only to the rooms, measurement positions, building condition and ventilation arrangements present at the time of the survey and should not be relied upon as representative of conditions at other times, under different operating conditions or in other areas of the building.

The assessment is limited to the scope stated within this report and does not constitute an investigation of all possible noise sources, building defects, acoustic weaknesses or future changes in the surrounding environment.

The assessment relies upon information provided by the client and other third parties. Airtight Building Solutions Ltd accepts no responsibility for inaccuracies, omissions or incomplete information supplied by others, or for any conclusions affected by such information.

Airtight Building Solutions Ltd accepts no responsibility for changes made after the survey, including changes to the building layout, room use, glazing, doors, ventilation systems, plant, equipment, surrounding developments or occupancy conditions.

No warranty or guarantee is provided that the measured noise levels will remain unchanged or that similar results will be achieved at another time. Airtight Building Solutions Ltd shall not be responsible for any indirect or consequential loss, loss of profit, loss of use, delay, remedial costs or other costs arising from reliance upon this report.

This report has been prepared solely for the named client and for the specific purpose stated within it. No duty of care is accepted to any third party, and no third party may rely upon, reproduce or distribute this report without prior written consent from Airtight Building Solutions Ltd.

	Name	Qualifications	Initials	Date
Prepared by:	Nilav Babariya	AMIOA, CCENM, CCBAM	NB	**25/09/26**
Checked by:	Suresh Babariya	CCENM, CCBAM	SB	**25/09/26**

Signed:

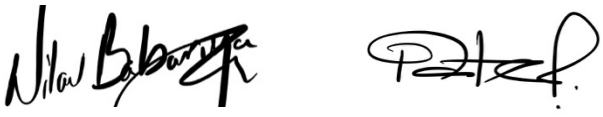


Table of Contents

1.0	***Introduction 3***
2.0	***Site Description 4***
3.0	***Noise Survey 5***
3.1	*Microphone Location 5*
3.2	*Measurement Equipment 5*
3.3	*Weather Conditions 5*
4.0	***Noise Survey Results 6***
4.1	*Measured Noise Levels 6*
5.0	***Guidance Documents – Noise Control 7***
5.1	*National Planning Policy Framework 7*
5.2	*Noise Policy Statement for England 7*
5.3	*World Health Organisation Guidelines 8*
5.4	*British Standard 8233:2014 9*
5.5	*Summary of Guidance Documentation and Conclusion 9*
6.0	***BS8233 Façade Assessment 10***
6.1	*External Envelope Construction 10*
6.2	*Glazing Specification 10*
6.3	*Ventilation 11*
6.4	*Maximum Internal Noise Levels 11*
7.0	***Overheating Assessment 12***
8.0	***BS4142 Plant Noise 13***
Summary 14	
Appendix A – Site Plans 15	
Appendix B – Site Photos 16	
Appendix C – Calculation Sheets 17	
Appendix D – Insul Data Sheets 19	

1.0 Introduction

Airtight Building Solutions Ltd was instructed by Raj Bancil to undertake an environmental noise assessment for the proposed material change of use development at 60 Long Lane, Ickenham. The assessment considers acoustic conditions in accordance with BS 8233:2014.

The proposed development comprises of the erection of a two storey detached building with habitable roof space to provide 8 x 2-bed flats.

Measured data has been used to inform an assessment of potential noise ingress into the proposed habitable rooms and to determine suitable façade sound insulation, glazing and ventilation measures required to achieve appropriate internal noise levels in accordance with BS8233:2014 Sound Insulation and Noise Reduction for Buildings – Code of Practice, together with other relevant national planning and acoustic guidance.

This report describes the noise survey methodology and results, reviews the applicable guidance documentation and sets out the mitigation measures required to ensure that suitable internal acoustic conditions can be achieved within the proposed residential accommodation.

2.0 Site Description

The development site is located at 60 Long Lane, Ickenham, UB10 8SZ which is mostly a residential area. The proposed development comprises of the erection of a two storey detached building with habitable roof space to provide 8 x 2-bed flats.

The front of the development faces Long Lane and rear of the development backs onto gardens of neighbouring properties.

An environmental noise survey was undertaken to establish representative ambient and background sound levels affecting the development. Unattended instrumentation was positioned on scaffolding where the first floor would be, with direct exposure to Long Lane.

Site observations identified road traffic on Long Lane as the prominent element of the existing sound climate.

Figure 2.1 below shows a location map and aerial photo of the site and surrounding area.



Figure 2.0 - Location map and aerial photo of development site, images courtesy of Google Maps

3.0 Noise Survey

An environmental noise survey was undertaken over approximately 24 hours, from 15 September 2026 to 16 September 2026, to establish representative external noise levels affecting the proposed residential development. The measured data have been used to inform the BS 8233 façade assessment.

3.1 Microphone Location

Noise monitoring was undertaken using unattended instrumentation positioned on the front at first-floor height of the application site. The microphone was mounted in a free-field position with direct exposure to traffic on Long Lane.

The measurement position was selected to represent a worst-case external noise exposure at the proposed residential façades and is considered representative of the principal habitable-room façades.

A site plan showing the measurement location is provided in Appendix A. Site photographs of the measurement position are provided in Appendix B.

3.2 Measurement Equipment

The following measurement equipment was used, which complies with the performance specifications for Class 1 devices in accordance with BS EN 61672-1:2003.

Name	Serial Number	Last Calibrated	Calibration Due
Norsonic Precision Sound Analyser Type 140	1404768	Nov 2024	Nov 2026
Norsonic Type 1209 Pre-amplifier	31313	Nov 2024	Nov 2026
Norsonic Type 1225 Microphone	157320	Nov 2024	Nov 2026
Rion Type NC-74 Acoustic Calibrator	35046846	Feb 2026	Feb 2027

Table 3.2- Measurement equipment used on site

The meter was calibrated before and after the noise survey where no significant deviations were found. The meter was set to measure consecutive 'A' weighted 10-minute time samples.

3.3 Weather Conditions

The weather was fine and dry for the duration of the survey. Wind speed remained below 5 m/s. The temperature range was approximately 16 – 28 °C. The weather conditions were seen as suitable for environmental noise surveying in accordance with BS 7445-1:2003 '*Description and measurement of environmental noise*'.

4.0 Noise Survey Results

The noise levels measured at the fixed measurement position are shown in Figure 4.1 below. The full set of acoustic data measured on site is available upon request.

4.1 Measured Noise Levels

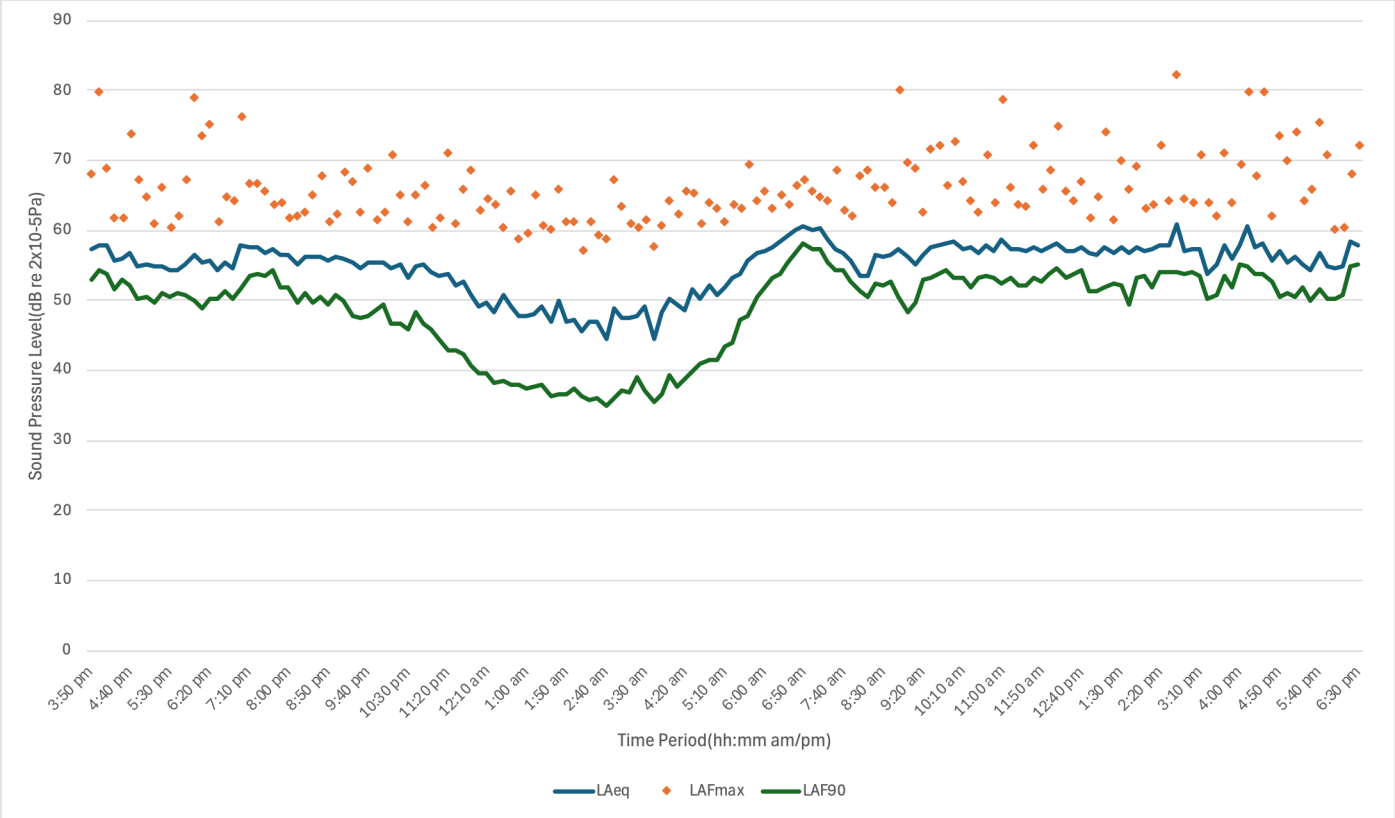


Figure 4.1 – Measured External Noise Levels

The following table provides a summary of measured External noise levels including the logarithmically averaged equivalent daytime and night time noise levels.

Time Period	Average Noise Level L_{Aeq}	Maximum Noise Level L_{Amax}
Daytime $L_{Aeq,16\ Hour}$ (07:00 – 23:00 hours)	57 dB	--
Night time $L_{Aeq,8\ Hour}$ (23:00 – 07:00 hours)	53 dB	71 dB

Table 4.1 – Day and Night Time External Noise Levels

The measured daytime and night time $L_{Aeq,T}$ levels have been used to inform the BS 8233 façade assessment presented later within this report.

5.0 Guidance Documents – Noise Control

The section above provides a summary of the noise levels on site. The purpose of this section is to provide a summary of guidance documentation relating to this development.

5.1 National Planning Policy Framework

The Government published the National Planning Policy Framework (NPPF) which sets out the Government's planning policies for England and how these are expected to be applied.

The Framework replaced many of the Planning Policy documents including Planning Policy Guidance 24: Planning and Noise that provided guidance on the control of noise to sensitive developments which may be affected by noise and vice versa. The NPPF provides a framework within which local people and their council can produce their own distinctive local and neighbourhood plans, which reflect the needs and priorities of their communities.

With regards to noise, the Framework states that 'Planning policies and decisions should aim to:

- avoid noise from giving rise to significant adverse impacts[27] on health and quality of life as a result of new development;
- mitigate and reduce to a minimum other adverse impacts[27] on health and quality of life arising from noise from new development, including through the use of conditions;
- recognise that development will often create some noise and existing businesses wanting to develop in continuance of their business should not have unreasonable restrictions put on them because of changes in nearby land uses since they were established;[28] and
- identify and protect areas of tranquillity which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason.

[27] See Explanatory Note to the Noise Policy Statement for England (Department for the Environment, Food and Rural Affairs).
[28] Subject to the provisions of the Environmental Protection Act 1990 and other relevant law.

With regards to 'adverse impacts' and 'significant adverse impacts' the NPPF does make reference to The Noise Policy Statement for England, published by Defra in March 2010.

5.2 Noise Policy Statement for England

The aim of the Noise Policy Statement for England (NPSE) is to provide clarity regarding current policies and practices to enable noise management decisions to be made within the wider context, at the most appropriate level, in a cost-effective manner and in a timely fashion. The NPSE applies to all forms of noise including environmental noise, neighbour noise and neighbourhood noise.

Noise Policy Vision: Promote good health and a good quality of life through the effective management of noise within the context of Government policy on sustainable development.

Noise Policy Aims: Through the effective management and control of environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development:

- avoid significant adverse impacts on health and quality of life;
- mitigate and minimise adverse impacts on health and quality of life; and
- where possible, contribute to the improvement of health and quality of life

The NPSE explanatory note provides further guidance on 'adverse' and 'significant adverse' impacts as follows:

- NOEL - No Observed Effect Level: the level below which no effect can be detected. Below this level there is no detectable effect on health and quality of life due to noise;
- LOAEL - Lowest Observable Adverse Effect Level: the level above which adverse effects on health and quality of life can be detected;
- SOAEL - Significant Observed Adverse Effect Level: the level above which significant adverse effects on health and quality of life occur.

The NPSE states that: *it is not possible to have a single objective noise-based measure that defines SOAEL that is applicable to all sources of noise in all situations. Consequently, the SOAEL is likely to be different for different noise sources, for different receptors and at different times*.

It can be concluded that the NPPF and NPSE define the concepts for the various levels of effect from noise however do not provide specific values. It is seen that it is up to the discretion of the Local Planning Authority to decide on what is deemed acceptable taking into account the specific circumstances for the proposed development.

5.3 World Health Organisation Guidelines

The World Health Organisation (WHO) document 'Guidelines for Community Noise' 1999 provides guidance to local authorities and professionals trying to protect people from the harmful effects of noise in non-industrial environments. Section 4 of the document provides guideline values with regards to specific environments and effects. The WHO document states the following:

In dwellings, the critical effects of noise are on sleep, annoyance and speech interference. To avoid sleep disturbance, indoor guideline values for bedrooms are 30 dB LAeq for continuous noise and 45 dB LAmax for single sound events. Lower levels may be annoying, depending on the nature of the noise source. For a good sleep, it is believed that indoor sound pressure levels should not exceed approximately 45 dB LAmax more than 10–15 times per night (Vallet & Vernet 1991).

WHO guidelines are typically adopted and applied to various noise sources with the criteria that indoor ambient noise levels in bedrooms at night does not exceed 30 dB LAeq and individual noise events should not regularly exceed 45 dB LAFmax. For indoor areas during the daytime, noise levels should not generally exceed 35 dB LAeq.

Outdoor noise sensitive receivers during the daytime should not generally exceed an upper limit of
55 dBA. The daytime period is typically taken to be from 07:00 – 23:00 hours.

5.4 British Standard 8233:2014

BS8233:2014 'Guidance for sound insulation and noise reduction for buildings' provides information on the design of buildings that have internal acoustic environments appropriate to their functions. It provides guidance on the control of noise from outside the building, noise from plant and services within it, and room acoustics for non-critical situations.

BS8233 provides a range of internal noise levels within unoccupied spaces depending on the buildings use. BS8233 states that for bedrooms at night, it is desirable that the indoor ambient noise level does not exceed 30 dB LAeq. For living rooms during the daytime, indoor ambient noise levels should not generally exceed 35 dB LAeq.

BS8233:2014 advises that: Regular individual noise events can cause sleep disturbance. A guideline value may be set in terms of SEL or LAmax,F depending on the character and number of events per night. Sporadic noise events could require separate values.

5.5 Summary of Guidance Documentation and Conclusion

It is seen that the noise level criteria within the WHO Guidelines 1999 and BS8233:2014 have been adopted for this development. These noise level targets have been imposed upon similar developments and are seen as suitable design targets where disturbance to future habitants are unlikely. These target noise level values are tabulated within the table below.

Habitable Space	Time Period	Noise Level Target
Sleeping (night)	23:00 – 07:00 hours	30 dB $L_{Aeq\ 8hr}$ / 45 dB L_{AFmax}
Resting / Sleeping (day)	07:00 – 23:00 hours	35 dB $L_{Aeq\ 16hr}$

Table 5.5 - Noise level targets

6.0 BS8233 Façade Assessment

To assess the internal acoustic environment within the proposed flats, façade break-in calculations have been carried out in accordance with BS8233:2014. The aim is to ensure internal noise levels remain within recommended criteria for both daytime and nighttime periods. Window and room sizes are based on current planning drawings.

The assessment is based on the measured external noise levels presented in Section 4.0 and considers the performance of the external building envelope, glazing and ventilation provisions. Sample calculations are provided in Appendix C.

6.1 External Envelope Construction

The approved drawings indicate conventional masonry cavity wall, timber wall and a pitched roof construction. These elements are expected to provide a high level of sound insulation and are not anticipated to represent the limiting elements of the building envelope.

The indicative sound insulation performance of the wall and roof constructions is summarised in Table 6.1.

Type	Construction Specification	Acoustic Rating R_w (C_{tr}) dB
External Wall – Masonry	100mm Dense Concrete Block, 100mm Insulation(10kg/m3), 100mm Dense Concrete Block	61 (-8)
External Wall - Timber	14mm Roofing Tiles, 17.5mm Ply, 60mm Insulation(10kg/m3), PIR, 12.5mm PB	47 (-5)
Pitched Roof	14mm Roofing Tiles, 100mm Insulation(10kg/m3), 10mm PB	46 (-8)

Table 6.1 - Example building envelope constructions and sound insulation performance

The above constructions are not expected to represent the limiting elements of the building envelope. The overall façade performance will therefore be governed by glazing and ventilation elements, as assessed in the following sections.

6.2 Glazing Specification

Façade break-in calculations have been undertaken based on the measured external noise levels presented in Section 4.0. Internal noise targets have been derived from BS8233:2014, including 35 dB $L_{Aeq,16hr}$ for living rooms during the daytime period and 30 dB $L_{Aeq,8hr}$ for bedrooms during the night-time period.

Room Description	Sample Glazing Specification	Acoustic Rating R_w (C_{tr})
All Bedrooms and Living rooms	4mm Glass / 12mm Air Cavity / 4mm Glass	**31 (-4) dB**

Table 6.2 – Minimum glazing specification for habitable rooms

The assessment demonstrates that a minimum glazing specification comprising 4/12/4 mm double glazing achieving a sound reduction performance of approximately R_w 31 dB is

required within bedrooms and living rooms.

The façade calculations demonstrate that, with the glazing specifications outlined above, internal noise levels within the proposed habitable rooms can be controlled to meet the recommended guideline values set out within BS8233:2014 with windows closed.

6.3 Ventilation

It is generally accepted that a partially open window provides approximately 10–15 dB attenuation from external noise sources. Where internal noise criteria are required to be achieved with windows closed, the ventilation strategy should provide suitable background ventilation without materially reducing the overall acoustic performance of the façade.

It is generally advised that background ventilators achieve a similar acoustic performance to the glazing system, such that the ventilators do not become the limiting element of the façade construction.

Based on the measured external noise levels affecting the proposed development, acoustic background ventilators achieving the following minimum performance are recommended.

Location	Sample Trickle ventilator	Minimum Acoustic Performance
All Bedrooms and Living rooms	Simon Framevent(FV)	**$D_{n,e,w}$ ≥ 31 dB**

Table 6.3 - Minimum sound reduction for acoustic trickle vents

The assessment indicates that acoustic background ventilators achieving a minimum performance of $D_{n,e,w}$ 31 dB are required within bedrooms and living rooms to maintain compliance with the internal noise criteria contained within BS8233:2014.

The ventilation strategy should also satisfy the requirements of Building Regulations Approved Document F. Purge ventilation may be provided by openable windows, as this mode of ventilation is intended for short-duration use to rapidly remove pollutants, odours or excess moisture and is not relied upon for normal background ventilation. Accordingly, temporary exceedance of the internal noise criteria during purge ventilation is considered acceptable.

6.4 Maximum Internal Noise Levels

To achieve a reasonable standard in bedrooms during the night, the World Health Organisation Guidelines for Community Noise recommend that individual noise events should not regularly exceed 45 dB L_{AFmax}. The WHO references research by Vallet & Vernet, which defines “regularly” as occurring no more than 10 to 15 times per night.

Based on a glazing specification providing a minimum sound reduction of 31 dB R_w to bedrooms, the corresponding external noise level required to meet the internal criterion is approximately 76 dB L_{AFmax} during the night-time period.

Review of the survey data indicates that external noise levels never exceeded 76 dB L_{AFmax}. This is substantially below the threshold for regular occurrence as defined by the WHO guidance and indicates that maximum noise events are unlikely to give rise to sleep disturbance.

7.0 Overheating Assessment

An assessment of potential overheating risk has been undertaken with reference to the ANC/IOA Acoustics, Ventilation and Overheating Residential Design Guide (2020). This guidance identifies indicative thresholds of 50 dB $L_{Aeq,8hr}$ and 65 dB L_{AFmax}, based on the 10th highest event during the night-time period, above which occupants may be discouraged from opening windows for cooling and purge ventilation.

Review of the survey data indicates that the measured night-time ambient noise level was 53 dB $L_{Aeq,8hr}$, with a 10th highest night-time maximum noise level of 65.7 dB L_{AFmax}. These levels exceed the indicative thresholds identified within the ANC/IOA guidance.

On this basis, noise levels affecting the most exposed façades may discourage occupants from relying on open windows for background ventilation during some periods, particularly at night. Consequently, the provision of acoustically attenuated background ventilation is recommended to enable the internal noise criteria contained within BS8233:2014 to be achieved with windows closed.

It should be noted that background ventilation does not provide active cooling. Where overheating mitigation is required, this should be addressed through the building design, including solar control measures, façade design, thermal performance, purge ventilation strategy and, where necessary, mechanical cooling systems.

The results of this assessment do not preclude the use of openable windows for rapid purge ventilation when required. The primary means of background ventilation should be capable of operating whilst maintaining the acoustic performance identified within this report. Occupants may nevertheless experience elevated external noise levels when windows are opened.

8.0 BS4142 Plant Noise

No external mechanical plant was present at the site at the time of the survey and no plant noise sources were identified during the measurement period.

The submitted drawings do not indicate any external condensers, air handling units, extract systems or other fixed mechanical plant associated with the proposed development. As such, a detailed assessment in accordance with BS4142:2014+A1:2019 is not considered necessary at this stage.

Should external mechanical plant be proposed as part of the detailed design, the equipment should be selected and installed such that noise emissions do not give rise to adverse impacts at nearby noise-sensitive receptors.

Any future plant serving the development should be designed to achieve a rating level, including any acoustic character corrections, that does not exceed the representative background sound level at the nearest noise-sensitive receptor when assessed in accordance with BS4142:2014+A1:2019.

Mechanical ventilation systems serving habitable rooms should also be designed to achieve suitable internal noise levels. Typical internal design criteria are presented in Table 7.1 below.

Room Type	Maximum Internal Noise Level
Bedroom (night-time)	NR 25
Living and Bed rooms (daytime)	NR 30
Bathrooms and WCs	NR 45

Table 8.0 - Internal building services noise criteria

Mechanical services plant should be selected and installed to ensure that the above criteria are achieved within the completed development.

Where required, plant noise calculations should be undertaken once equipment selections and installation details have been finalised.

On the basis of the information currently available, plant noise is not expected to represent a constraint to the proposed development.

Summary

Airtight Building Solutions Ltd has undertaken an environmental noise assessment for the proposed development at 60 Long Lane, Ickenham comprising of the erection of a two storey detached building with habitable roof space to provide 8 x 2-bed flats.

The assessment considers the total external sound climate in accordance with BS 8233:2014.

The 24-hour environmental noise survey was undertaken from 15th September 2026 to 16th September 2026. Road traffic on Long Lane was observed as the prominent component of the existing acoustic environment.

The measured daytime ambient sound level was 57 dB $L_{Aeq,16hr}$ and the measured night-time ambient sound level was 53 dB $L_{Aeq,8hr}$. The highest measured night-time level was 71 dB L_{AFmax}.

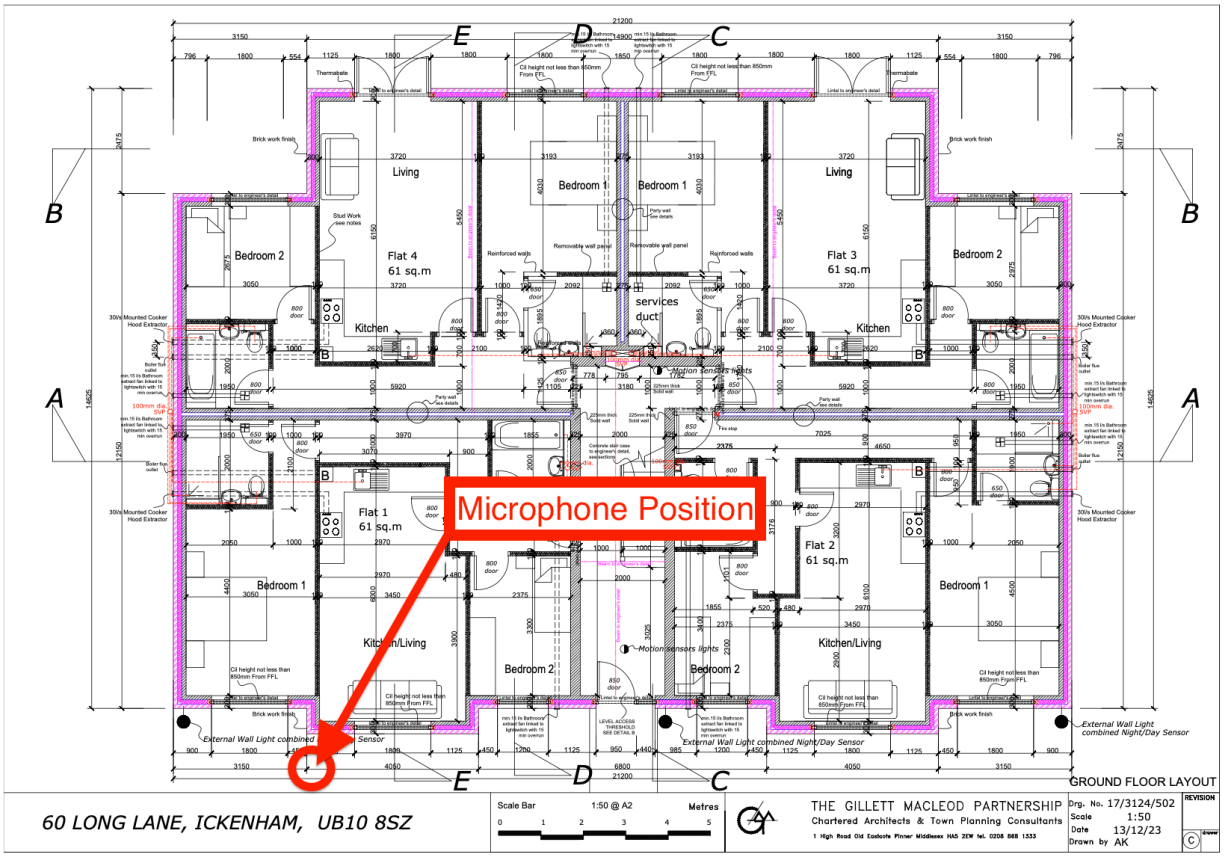
The BS 8233 façade assessment confirms that bedrooms and living rooms require 4/12/4 mm double glazing achieving approximately R_w 31 dB, together with acoustic background ventilators achieving at least $D_{n,e,w}$ 31 dB. These measures address the total measured external sound climate when the windows are closed.

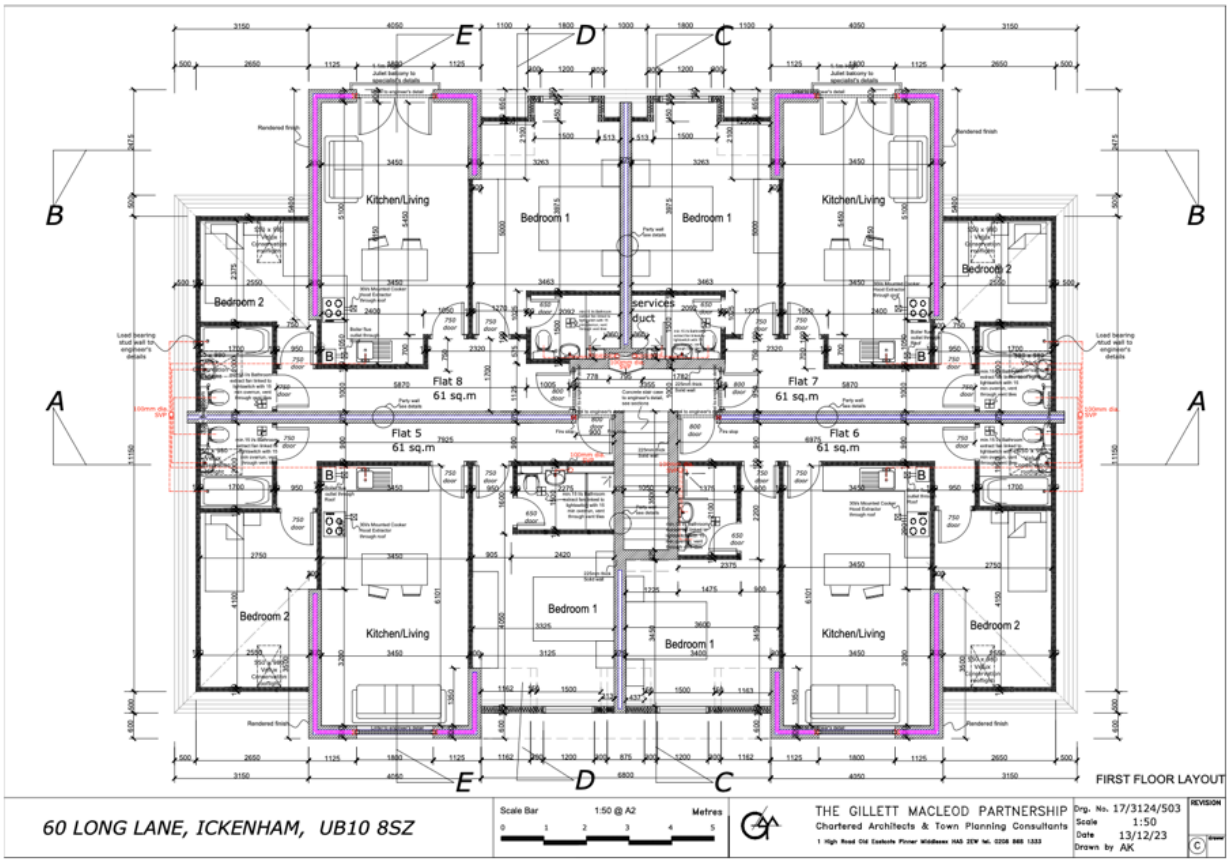
The assessment has also considered the potential for overheating with reference to the ANC/IOA Acoustics, Ventilation and Overheating Residential Design Guide. Whilst the measured night-time noise levels exceed the indicative thresholds identified within the guidance, the provision of acoustically attenuated background ventilation will allow suitable internal noise levels to be achieved whilst maintaining adequate background ventilation.

No significant environmental noise constraints have been identified that would preclude the proposed residential development.

Subject to the façade and ventilation recommendations contained within this report, suitable internal acoustic conditions can be achieved within the proposed residential accommodation.

Appendix A – Site Plans





Appendix B – Site Photos





Appendix C – Calculation Sheets

Number, Street: Front - Flat 5 - K L(Day)									
BS8233 Facade Noise Break In Calculation			**125**	**250**	**500**	**1000**	**2000**	**4000**	**dBA**
Average External Noise Level - L_{eq}			68.5	69.2	66.6	68.4	62.4	52.1	71.1
Maximum External Noise Level - L_{max}									6.3
Safety Tolerance	3 dB		3.0	3.0	3.0	3.0	3.0	3.0	
Correction Factors									
Trafiic Flow Correction	0.0 dB		0.0	0.0	0.0	0.0	0.0	0.0	
Distance Correction L2 = L1 - 10*log(D1/D2)	-14.3 dB		-14.3	-14.3	-14.3	-14.3	-14.3	-14.3	
Distance Correction for Line Source - Façade 1			-14.3	-14.3	-14.3	-14.3	-14.3	-14.3	
Barrier Correction Ab = 10 log10 (D + d) dB	0.0 dB		0.0	0.0	0.0	0.0	0.0	0.0	
Angle of View Correction Av = 10 log(θ/180)	180		0.0	0.0	0.0	0.0	0.0	0.0	
Noise Level at Façade			57.3	58.0	55.3	57.1	51.2	40.9	59.9
Calculation of environmental noise break-in to residential rooms									
L2 = L1 - R + 10*log(S/A) + 3dB (Freefield version)									
Room Volume =	53.0 m3								
Reverberation Time =	0.5 s		0.5	0.5	0.5	0.5	0.5	0.5	
10*log(S/A)			-1.8	-1.8	-1.8	-1.8	-1.8	-1.8	
FAÇADE Elements									
Total Façade Area 1	11.4 m2								
Glazing Area, Sg - Façade 1	2.5 m2								
4mm Glass / 12mm Air Cavity / 4mm Glass		SRI	23	18	26	38	44	38	
		Sg/Sf	-30	-25	-33	-45	-51	-45	
Predicted noise level in building from glazing 1			28.8	34.5	23.9	13.7	1.7	-2.6	27.4
Solid Area, Sw - Façade 1	8.9 m2								
300mm Brick Block Wall		SRI	40	49	60	71	82	91	
		Sw/Sf	-41	-50	-61	-72	-83	-92	
Predicted noise level through solid façade 1			17.4	9.1	-4.6	-13.8	-30.7	-50.0	4.3
Roof/Floor Area, Sc - Façade 1	21.2 m2								
Pitched Roof		SRI	25	39	47	52	48	52	
		Sc/Sf	-22	-36	-44	-49	-45	-49	
Predicted noise level through solid façade 3 / Roof			36.2	22.9	12.2	9.0	7.0	-7.2	21.8
Trickle Vent(s) - Façade 1	1 Vent								
Simons Framevent FV		Dne	34	33	33	33	29	31	
		Ao/S	-35	-34	-34	-34	-30	-32	
Predicted noise level through trickle vents ` Lff-Dne+10log(A0/A)+K			23.6	25.2	22.7	24.5	22.6	10.5	28.3
Combined Internal Noise Level - L_{eq}			**37.2**	**35.3**	**26.5**	**25.1**	**22.8**	**12.0**	**31**
Target Internal Noise Level (dBA)									35
									Pass

Number, Street: Front - Flat 5 - Bedroom(Night)									
BS8233 Facade Noise Break In Calculation			**125**	**250**	**500**	**1000**	**2000**	**4000**	**dBA**
Average External Noise Level - L_{eq}			62.2	63.8	62.4	64.9	59.0	46.4	67.3
Maximum External Noise Level - L_{max}									6.3
Safety Tolerance	3 dB		3.0	3.0	3.0	3.0	3.0	3.0	
Correction Factors									
Trafiic Flow Correction	0.0 dB		0.0	0.0	0.0	0.0	0.0	0.0	
Distance Correction L2 = L1 - 10*log(D1/D2)	-14.3 dB		-14.3	-14.3	-14.3	-14.3	-14.3	-14.3	
Distance Correction for Line Source - Façade 1			-14.3	-14.3	-14.3	-14.3	-14.3	-14.3	
Barrier Correction Ab = 10 log10 (D + d) dB	0.0 dB		0.0	0.0	0.0	0.0	0.0	0.0	
Angle of View Correction Av = 10 log(θ/180)	180		0.0	0.0	0.0	0.0	0.0	0.0	
Noise Level at Façade			50.9	52.5	51.1	53.6	47.7	35.1	56.0
Calculation of environmental noise break-in to residential rooms									
L2 = L1 - R + 10*log(S/A) + 3dB (Freefield version)									
Room Volume =	37.0 m3								
Reverberation Time =	0.5 s		0.5	0.5	0.5	0.5	0.5	0.5	
10*log(S/A)			-1.9	-1.9	-1.9	-1.9	-1.9	-1.9	
FAÇADE Elements									
Total Façade Area 1	7.8 m2								
Glazing Area, Sg - Façade 1	1.6 m2								
4mm Glass / 12mm Air Cavity / 4mm Glass		SRI	23	18	26	38	44	38	
		Sg/Sf	-30	-25	-33	-45	-51	-45	
Predicted noise level in building from glazing 1			22.0	28.6	19.2	9.7	-2.2	-8.8	21.9
Solid Area, Sw - Façade 1	6.3 m2								
214mm Timber Wall		SRI	30	39	45	51	46	52	
		Sw/Sf	-31	-40	-46	-52	-47	-53	
Predicted noise level through solid façade 1			21.1	13.6	6.3	2.8	1.9	-16.7	10.9
Roof/Floor Area, Sc - Façade 1	0.0 m2								
Pitched Roof		SRI	25	39	47	52	48	52	
		Sc/Sf	0	0	0	0	0	0	
Predicted noise level through solid façade 3 / Roof			0.0	0.0	0.0	0.0	0.0	0.0	0.0
Trickle Vent(s) - Façade 1	1 Vent								
Simons Framevent FV		Dne	34	33	33	33	29	31	
		Ao/S	-33	-32	-32	-32	-28	-30	
Predicted noise level through trickle vents ` Lff-Dne+10log(A0/A)+K			18.8	21.3	20.0	22.6	20.7	6.3	26.1
Combined Internal Noise Level - L_{eq}			**25.7**	**29.5**	**22.9**	**23.0**	**20.9**	**9.7**	**28**
Target Internal Noise Level (dBA)									30
									Pass

Number, Street: Rear - Flat 8 - K L(Day)								
BS8233 Facade Noise Break In Calculation			**125**	**250**	**500**	**1000**	**2000**	**4000**	**dBA**
Average External Noise Level - L_{eq}			68.5	69.2	66.6	68.4	62.4	52.1	71.1
Maximum External Noise Level - L_{max}									6.3
Safety Tolerance	3 dB		3.0	3.0	3.0	3.0	3.0	3.0	
Correction Factors									
Trafiic Flow Correction	0.0 dB		0.0	0.0	0.0	0.0	0.0	0.0	
Distance Correction L2 = L1 - 10*log(D1/D2)	0.0 dB		0.0	0.0	0.0	0.0	0.0	0.0	
Distance Correction for Line Source - Façade 1			0.0	0.0	0.0	0.0	0.0	0.0	
Barrier Correction Ab = 10 log10 (D + d) dB			-15.0	-18.0	-21.0	-24.0	-27.0	-29.0	
Angle of View Correction Av = 10 log(θ/180)	180		0.0	0.0	0.0	0.0	0.0	0.0	
Noise Level at Façade			56.5	54.2	48.6	47.4	38.4	26.1	51.7
Calculation of environmental noise break-in to residential rooms									
L2 = L1 - R + 10*log(S/A) + 3dB (Freefield version)									
Room Volume =	50.8 m3								
Reverberation Time =	0.5 s		0.5	0.5	0.5	0.5	0.5	0.5	
10*log(S/A)			-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	
FAÇADE Elements									
Total Façade Area 1	16.2 m2								
Glazing Area, Sg - Façade 1	4.0 m2								
4mm Glass / 12mm Air Cavity / 4mm Glass		SRI	23	18	26	38	44	38	
		Sg/Sf	-29	-24	-32	-44	-50	-44	
Predicted noise level in building from glazing 1			30.3	33.0	19.4	6.2	-8.8	-15.1	25.4
Solid Area, Sw - Façade 1	12.3 m2								
300mm Brick Block Wall		SRI	40	49	60	71	82	91	
		Sw/Sf	-41	-50	-61	-72	-83	-92	
Predicted noise level through solid façade 1			18.2	6.9	-9.7	-21.9	-41.9	-63.2	3.7
Roof/Floor Area, Sc - Façade 1	20.3 m2								
Pitched Roof		SRI	25	39	47	52	48	52	
		Sc/Sf	-24	-38	-46	-51	-47	-51	
Predicted noise level through solid façade 3 / Roof			35.4	19.1	5.5	-0.7	-5.7	-22.0	20.0
Trickle Vent(s) - Façade 1	1 Vent								
Standard Trickle Vent		Dne	29	22	32	30	29	29	
		Ao/S	-31	-24	-34	-32	-31	-31	
Predicted noise level through trickle vents ` Lff-Dne+10log(A0/A)+K			28.3	33.3	17.5	18.4	9.9	-2.4	26.3
Combined Internal Noise Level - L_{eq}			**37.3**	**36.3**	**21.8**	**18.9**	**11.5**	**6.6**	**29**
Target Internal Noise Level (dBA)									35
									Pass

Number, Street: Rear - Flat 8 - Bedroom1(Night)								
BS8233 Facade Noise Break In Calculation			**125**	**250**	**500**	**1000**	**2000**	**4000**	**dBA**
Average External Noise Level - L_{eq}			62.2	63.8	62.4	64.9	59.0	46.4	67.3
Maximum External Noise Level - L_{max}									6.3
Safety Tolerance	3 dB		3.0	3.0	3.0	3.0	3.0	3.0	
Correction Factors									
Trafiic Flow Correction	0.0 dB		0.0	0.0	0.0	0.0	0.0	0.0	
Distance Correction L2 = L1 - 10*log(D1/D2)	0.0 dB		0.0	0.0	0.0	0.0	0.0	0.0	
Distance Correction for Line Source - Façade 1			0.0	0.0	0.0	0.0	0.0	0.0	
Barrier Correction Ab = 10 log10 (D + d) dB			-15.0	-18.0	-21.0	-24.0	-27.0	-29.0	
Angle of View Correction Av = 10 log(θ/180)	180		0.0	0.0	0.0	0.0	0.0	0.0	
Noise Level at Façade			50.2	48.8	44.4	43.9	35.0	20.4	47.4
Calculation of environmental noise break-in to residential rooms									
L2 = L1 - R + 10*log(S/A) + 3dB (Freefield version)									
Room Volume =	38.2 m3								
Reverberation Time =	0.5 s		0.5	0.5	0.5	0.5	0.5	0.5	
10*log(S/A)			-0.8	-0.8	-0.8	-0.8	-0.8	-0.8	
FAÇADE Elements									
Total Façade Area 1	10.4 m2								
Glazing Area, Sg - Façade 1	1.5 m2								
4mm Glass / 12mm Air Cavity / 4mm Glass		SRI	23	18	26	38	44	38	
		Sg/Sf	-31	-26	-34	-46	-52	-46	
Predicted noise level in building from glazing 1			21.1	24.7	12.3	-0.2	-15.1	-23.7	17.2
Solid Area, Sw - Façade 1	8.9 m2								
214mm Timber Wall		SRI	30	39	45	51	46	52	
		Sw/Sf	-31	-40	-46	-52	-47	-53	
Predicted noise level through solid façade 1			21.8	11.3	1.0	-5.5	-9.5	-30.0	8.2
Roof/Floor Area, Sc - Façade 1	4.2 m2								
Pitched Roof		SRI	25	39	47	52	48	52	
		Sc/Sf	-29	-43	-51	-56	-52	-56	
Predicted noise level through solid façade 3 / Roof			23.5	8.0	-4.3	-9.8	-14.8	-33.3	8.2
Trickle Vent(s) - Façade 1	1 Vent								
Standard Trickle Vent		Dne	29	22	32	30	29	29	
		Ao/S	-29	-22	-32	-30	-29	-29	
Predicted noise level through trickle vents ` Lff-Dne+10log(A0/A)+K			23.3	29.1	14.6	16.2	7.8	-6.8	22.6
Combined Internal Noise Level - L_{eq}			**28.6**	**30.6**	**17.1**	**16.7**	**10.1**	**6.2**	**24**
Target Internal Noise Level (dBA)									30
									Pass

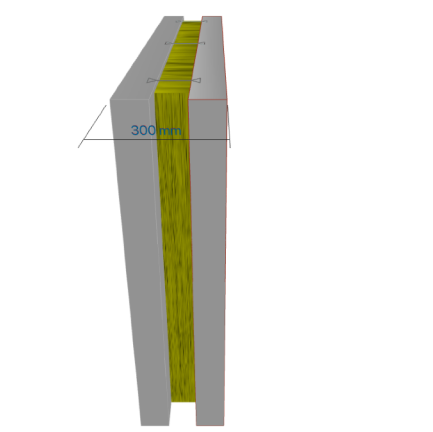
Appendix D – Insul Data Sheets

Sound Insulation Prediction (v10.0.6)

Program copyright Marshall Day Acoustics 2023 | Margin of error is generally within Rw ±3 dB

Date: 18/09/2026

Job Name:

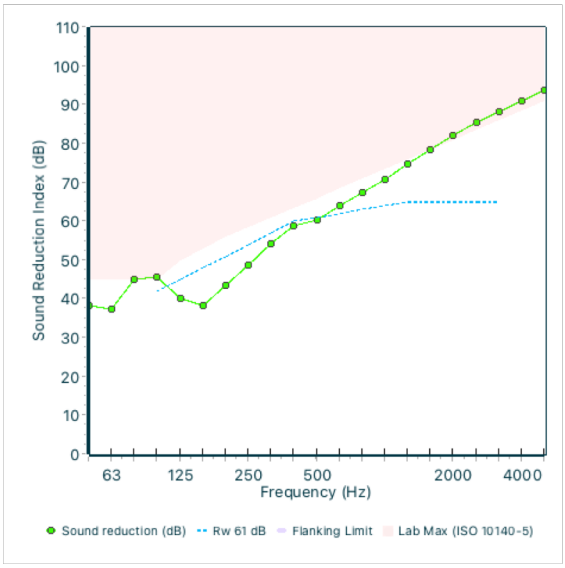


Rw 61 dB
C -4 dB
Ctr -8 dB

System description

Panel 1	1 x 100 mm Dense Aggregate Concrete Block (So...
Frame	Double Triangle Tie (100 mm) + 100 mm Fibreglass (10kg/m3) 60mm
Panel 2	1 x 100 mm Dense Aggregate Concrete Block (So...
Details	Panel Size 2.7 m x 4.0 m, Partition surface mass = 399 kg/m², Mass-air-mass resonant frequency = 18 Hz

freq. (Hz)	R (dB)	Roct (dB)
50	38	
63	37	39
80	45	
100	46	
125	40	40
160	38	
200	43	
250	49	47
315	54	
400	59	
500	60	61
630	64	
800	67	
1000	71	70
1250	75	
1600	78	
2000	82	81
2500	86	
3150	88	
4000	91	90
5000	94	

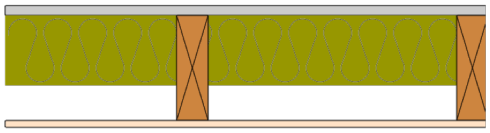


Sound Insulation Prediction (v10.0.6)

Program copyright Marshall Day Acoustics 2023 | Margin of error is generally within Rw ±3 dB

Date: 18/09/2026

Job Name:

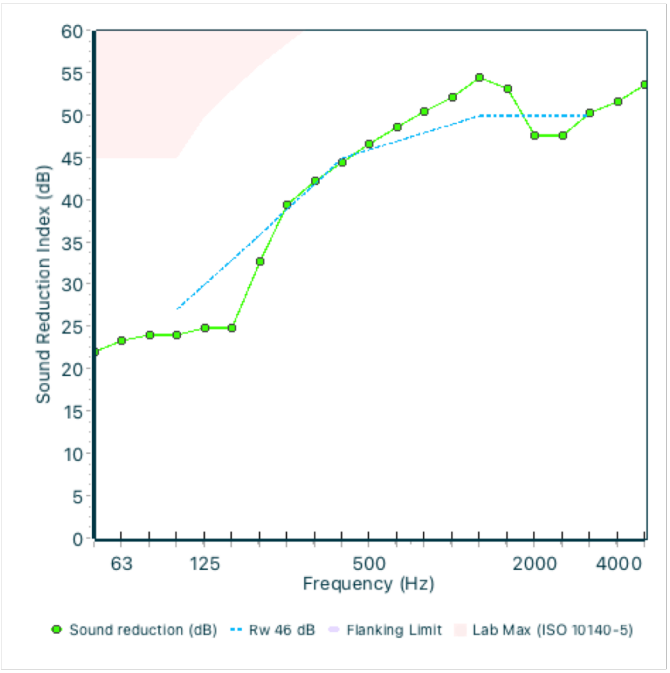


Rw 46 dB
C -3 dB
Ctr -8 dB

System description

Panel 1	1 x 14 mm Roofing tiles
Frame	Timber stud (150 mm x 45 mm), Stud spacing 400 mm , Cavity Width 150 mm + 100 mm Fibreglass (10kg/m3) 60mm
Panel 2	1 x 10 mm Plasterboard
Details	Panel Size 2.7 m x 4.0 m, Partition surface mass = 41.6 kg/m², Mass-air-mass resonant frequency = : 62 Hz

freq. (Hz)	R (dB)	Roct (dB)
50	22	
63	23	23
80	24	
100	24	
125	25	25
160	25	
200	33	
250	39	36
315	42	
400	45	
500	47	46
630	49	
800	50	
1000	52	52
1250	54	
1600	53	
2000	48	49
2500	48	
3150	50	
4000	52	52
5000	54	

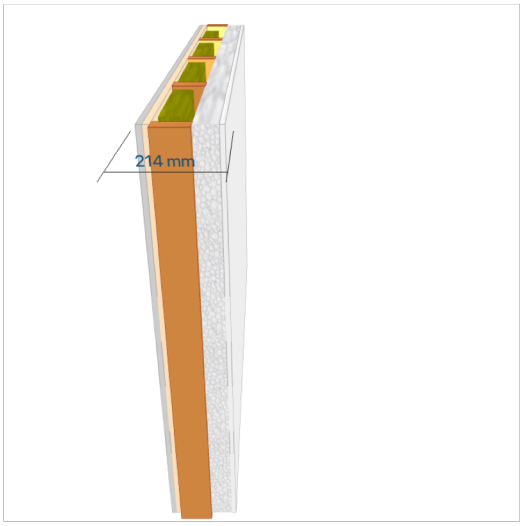


Sound Insulation Prediction (v10.0.6)

Program copyright Marshall Day Acoustics 2023 | Margin of error is generally within Rw ±3 dB

Date: 18/09/2026

Job Name:



Rw 47 dB
C -1 dB
Ctr -5 dB

System description

Panel 1	1 x 14 mm Roofing tiles + 1 x 17.5 mm Plywood
Frame	Polystyrene Insulation on Stud (90 mm x 45 mm), Stud spacing 400 mm , Cavity Width 170 mm + 60 mm Fibreglass (10kg/m3) 60mm
Panel 2	1 x 12.5 mm Gyproc Wallboard 12.5mm
Details	Panel Size 2.7 m x 4.0 m, Partition surface mass = 51.9 kg/m², Mass-air-mass resonant frequency = 55 Hz

freq. (Hz)	R (dB)	Roct (dB)
50	17	
63	19	19
80	23	
100	26	
125	30	29
160	36	
200	37	
250	39	39
315	41	
400	43	
500	45	45
630	47	
800	48	
1000	51	50
1250	52	
1600	49	
2000	46	48
2500	48	
3150	49	
4000	52	51
5000	57	

