



Acoustic Survey and Assessment for Proposed conversion of barns to residential 11 South Parade, Rochdale, OL16 1LR.

Prepared for:

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1. Introduction

- 1.1. Martin Environmental Solutions has been commissioned to undertake an acoustic survey and assessment to support a planning application for the conversion of the upper floors to residential at 11 South Parade, Rochdale, OL16 1LR.

Site Location and Context

- 1.2. The development site is situated to the south of South Parade and forms part of a terrace of mixed-use properties. The ground floors contain retail units including hot food take-aways while the upper floors a mixture of offices, storage and residential units.
- 1.3. To the rear south is Fleece Street and a large job centre building, to the north an open public paved area beyond the road with commercial units beyond. To the northeast the tramway runs into a station.
- 1.4. An aerial Photograph is enclosed in Figure 1, together with a proposed layout drawing in Figure 2.
- 1.5. The report has been produced to clarify the potential impact on the proposed development and to identify mitigation measures if required to ensure the development is appropriate in terms of noise impact.



2. Policy and Guidance

- 2.1. The impact of noise can be a material consideration in the determination of planning applications. The planning system has the task of guiding development to the most appropriate locations. It is recognised that on occasions it will be difficult to reconcile some land uses, such as housing, hospitals, or schools, with other activities that generate high levels of noise. However, the planning system is tasked to ensure that, wherever practicable, noise-sensitive developments are separated from major sources of noise (such as road, rail and air transport and certain types of industrial development).
- 2.2. The Government's publication of the National Planning Policy Framework (NPPF), updated in December 2024, states that planning policies and decisions should prevent new and existing development from contributing to or being put at unacceptable risk from, of being adversely affected by unacceptable levels of noise pollution.
- 2.3. The Government have also issued the Noise Policy Statement for England (NPSE). The NPSE clarifies the Government's underlying principles and aims in relation to noise and sets a vision to promote good health and a good quality of life through the effective management of noise while having regard to the Government's sustainable development strategy. The NPSE aims to mitigate and minimise adverse impacts on health and quality of life through the effective management and control of noise.
- 2.4. The NPSE introduces the following terms, although no sound levels are given to represent these, many authorities have identified the sound level criteria in line with the World Health Organisation, BS8233:2014 and BS4142: 2014 levels. The terms introduced by the NPSE are:
- NOEL – No Observed Effect Level (<30dB(A) inside <50dB(A) outside, 10dB below background)
- LOAEL – Lowest Observed Adverse Effect Level (30-35dB(A) inside 50-55dB(A) outside, background to +5dB)
- SOAEL – Significant Observed Adverse Effect Level (>35dB(A) inside, >55dB(A) outside, >+10dB above background)
- 2.5. The sound levels within the brackets of the previous paragraph are those determined as appropriate levels to indicate the relevant effect levels represented by the NPSE.



- 2.6. Other commonly used examples of standards utilised by Local Planning authorities for the consideration of noise impacts include comparison of the likely noise levels to be experienced at a development, with levels that have been recommended by the World Health Organisation (WHO) as Guidelines for the prevention of Community Noise Annoyance and within BS8233: 2014.
- 2.7. The WHO recommended noise levels for outdoor amenity areas (gardens) that should not be exceeded are 55dB(A) $L_{Aeq,16hr}$ in order to avoid 'Serious Community Annoyance' or 50dB(A) $L_{Aeq,16hr}$ to avoid 'Moderate Community Annoyance' during the day. For indoor levels WHO set 35dB(A) $L_{Aeq,16hr}$ during the day to prevent Moderate Annoyance and 30 dB(A) $L_{Aeq,8hr}$ at night to prevent sleep disturbance.
- 2.8. The WHO guidance also recommends that maximum sound levels at night should not regularly exceed 45dB(A) within bedrooms to prevent sleep disturbance. Regularly is considered to be more than 10 times during any 8-hour night-time period.
- 2.9. BS 8233:2014 'Guidance on sound insulation and noise reduction for buildings' also specifies desirable noise levels to be achieved inside dwellings.
- 2.10. BS 8233:2014 'Sound insulation and noise reduction for buildings – Code of Practice' also specifies desirable noise levels to be achieved inside dwellings. BS 8233 presents two levels, the first between the hours of 07:00 – 23:00 and the second between 23:00 -07:00.
- 2.11. The daytime period suggests internal noise levels of 35dB $L_{Aeq,16hr}$, for resting in living rooms and bedrooms while for night-time a level of 30dB $L_{Aeq,8hr}$ is recommended. Criteria for external areas mirrors that within the WHO guidance.
- 2.12. Another commonly used standard is British Standard 4142:2014 'Method for rating industrial and commercial sound' compares the sound predicted by the source in question against the background, L_{A90} sound levels.
- 2.13. The "residual" L_{Aeq} measurement is then subtracted from the "ambient" L_{Aeq} measurement (with the sound source) to calculate the sound level created by the "problem" sound alone -termed the "specific" sound level.



- 2.14. If the "problem" sound is tonal, such as whine or hum, or if it is impulsive such as bangs or clatters or if it is irregular enough to attract attention a correction is added to the "specific level" to produce the "rating level". The "background" L_{A90} measurement is then compared against the "rating level".
- 2.15. If the "rating level" exceeds the "background" by around 10dB(A) or more this "indicates a significant adverse impact". A difference of around 5dB(A) 'indicates an adverse impact. The lower the commercial noise level is, the lower the likely impact.
- 2.16. In addition, the 'ProPG Planning & Noise, Professional Practice Guidance on Planning & Noise, New Residential Development' provides a 4-staged approach to undertaking a risk assessment in relation to anticipated sound levels at new residential development and the provision of mitigation measures. The guidance is principally aimed at sites exposed predominantly to noise from transportation sources.
- 2.17. The first stage consists of an initial noise risk assessment, based on indicative day and night-time *noise* levels. Simply put, the higher the ambient noise in an area the greater the impact. The levels given are shown below although it should be noted that these are in excess of both the WHO and BS 8233: 2014 guidance.

Noise Risk Category*	Potential Effect if Unmitigated	Pre-Planning Application Guidance
0 – Negligible $L_{Aeq,16hr} < 50dB$ $L_{Aeq,8hr} < 40dB$	May be noticeable but no adverse effect on health and quality of life	In this category the development is likely to be acceptable from a noise perspective, nevertheless a good acoustic design process is encouraged to improve the existing environment and/or safeguard against possible future deterioration and to protect any designated tranquil areas. A noise assessment may be requested to demonstrate no adverse impact from noise. Application need not normally be delayed on noise grounds.
1 – Low $L_{Aeq,16hr} 50-63dB$ $L_{Aeq,8hr} 40-55dB$	Adverse effect on health and quality of life	In this category the development may be refused unless a good acoustic design process is followed and is demonstrated via a Level 1 Acoustic Design Statement which confirms how the adverse impacts of noise on the new development will be mitigated and minimised and that a significant adverse impact will not arise in the finished development. Planning conditions and other measures to control noise may be required.
2 – Medium $L_{Aeq,16hr} 63-69dB$ $L_{Aeq,8hr} 55-60dB$ $L_{AFmax} > 80dB^{**}$	Significant adverse effect on health and quality of life	In this category the development is likely to be refused unless good acoustic design process is followed and is demonstrated via a Level 2 Acoustic Design Statement which confirms how the adverse impacts of noise on the new development will be mitigated and minimised, and clearly demonstrates that a significant adverse noise impact will not arise in the finished development. Planning conditions and other measures to control noise will normally be required.
3 – High $L_{Aeq,16hr} > 69dB$ $L_{Aeq,8hr} > 60dB$ $L_{AFmax} > 80dB^{**}$	Unacceptable adverse effect of health and quality of life	In this category the development is very likely to be refused on noise grounds, even if a good acoustic design process is followed and is demonstrated via a Level 2 Acoustic Design Statement. Applicants are advised to seek expert advice on possible mitigation measures. Advice on the circumstances when the refusal of a new housing on noise grounds should normally be anticipated is included in the ProPG.

2.18. Stage 2, consists of a full assessment of the prevailing ambient noise and requires 4 elements to be considered:

- I. Element 1 – Good Acoustic Design
- II. Element 2 – Internal Noise Level Guidelines
- III. Element 3 – External Amenity Area Noise Assessment
- IV. Element 4 – Assessment of Other Relevant Issues

2.19. A good acoustic design is implicit in meeting the requirements of the NPPF and can help to resolve many potential acoustic issues.

2.20. Details of the criteria considered suitable are provided above for both internal and external sound levels. Element 4 includes such issues as local and national policy, likely occupants, wider planning objectives.



3. The Assessment

The development

3.1 The proposed development consists of the conversion of the first and second floors into two residential apartments.

3.2 Figure 2 below provides an overview of the proposed development.

Existing Situation.

3.3 In order to obtain representative background sound levels for the area on site monitoring was undertaken over the 5th-7th February 2025.

3.4 Two Cirrus Optimus Green sound level meters were utilised for the monitoring. The first meter was placed over 1m from the second-floor front façade overlooking the street in front of the property. The second meter from the second-floor rear façade overlooking the rear annex and neighbouring properties.

3.5 The meters were field calibrated at the start and end of the monitoring period with no significant variation and full laboratory calibration certificates are available on request.

3.6 The weather during the monitoring was dry with little to no wind <5m/s.

3.7 The full results are shown in Appendix A, with a summary in the tables below.

Front

Start Time	End Time	Duration	L _{Aeq}	L _{A90}	L _{AMax}
05/02/2025 13:00	05/02/2025 23:00	09:59:59	63.1	51.2	93.2
05/02/2025 23:00	06/02/2025 07:00	08:00:00	54.4	43.9	79.4
06/02/2025 07:00	06/02/2025 23:00	16:00:00	62.4	53.0	90.6
06/02/2025 23:00	07/02/2025 07:00	08:00:00	55.8	44.4	82.1
07/02/2025 07:00	07/02/2025 11:35	04:35:22	61.5	52.7	86.6

Rear

Start Time	End Time	Duration	L _{Aeq}	L _{A90}	L _{AMax}
05/02/2025 13:00	05/02/2025 23:00	09:59:59	66.8	64.7	76.2
05/02/2025 23:00	06/02/2025 07:00	08:00:00	62.7	38.5	76.9
06/02/2025 07:00	06/02/2025 23:00	16:00:00	66.6	64.4	81.7
06/02/2025 23:00	07/02/2025 07:00	08:00:00	63.5	42.7	75.3
07/02/2025 07:00	07/02/2025 11:00	04:00:00	65.3	48.4	84.2



Impact on Development

- 3.8 Background sound levels were dominated by passing traffic to the front of the site and extraction/refrigeration plant to the rear of the site. Between periods of plant noise at the rear music (lyrics) from nearby venues could be heard, but at a significantly lower volume (~54dB(A) compared to ~66dB(A)). Night-time maximum sound levels regularly exceeded were identified at 76.9dB(A) to the front and 71.6dB(A) to the rear.
- 3.9 Given a 15dB attenuation¹ for an open window the sound levels to be experienced by the future occupants are slightly above those identified within the guidance documents detailed in section 2 of the report. Therefore, further mitigation measures are required.
- 3.10 When the full façade of the property is taken into consideration a standard 6/12/6 double glazing unit, providing a sound reduction $R_w(C;C_{tr})$, of 36(-2;-5), is adequate to protect the future occupants of the apartments from the prevailing environmental sound levels and achieving those levels recommended in the guidance identified in section 2, see Appendix B for calculations.
- 3.11 It is therefore recommended that all habitable rooms are fitted with the 6/12/6 standard double-glazing units.
- 3.12 In order to be able to keep windows closed additional ventilation provision must be made for the property. As such it is recommended that a ventilation system is used incorporating acoustic trickle ventilators for all windows to habitable rooms to the proposed properties. The ventilators must achieve a similar or better performance to the windows when open and a number of suitable models are available from suppliers including the Greenwood DN Vent providing 34dB (C_{tr}) attenuation or the Titon, Trimvent Select S13 Ventilator providing 33dB (C_{tr}) attenuation. Other models and manufacturers are available.
- 3.13 Care must be taken to ensure that windows are well fitted and gaps between the window frame and the brick work are minimised. Where gaps do occur, these should be filled with a suitable acoustic material, not expandable foam. The window frame should be sealed across the full depth of the frame and not just around the edges. This will ensure that sound does not 'leak' around the edge of the frame.

¹ BS8233: 2014; Guidance on sound insulation and noise reduction for buildings



- 3.14 It is worth noting that the above provision does not prohibit the short opening of windows for purge ventilation of the property. The recommended trickle ventilation is design to achieve the required background ventilation for the property.
- 3.15 A consideration of the Building Regulations, and Approved Document O requirements around overheating is essential given the need for closed windows. The Regulations require adequate provision to be made for the removal of heat from the building and to limit solar gain.

BS4142:2014+A1:2019 Assessment

- 3.16 As mentioned above the sound level to the rear of the site was dominated by plant noise. Extraction equipment was continuous throughout the operational hours of the nearby take-aways and was switched on at 09:00 each morning and off at 00:36 on both evenings. At the same time refrigeration unit was periodically heard above the extraction system throughout the day and night-time periods, the on-time lasted for 8 minutes with a gap of between 25minutes.
- 3.17 A review of the 1/3-octave frequency data showed no tonal noise associated with the extraction system although it was distinctive, and a slight tone at 50Hz for the refrigeration plant. BS4142:2014 assessment has been undertaken for the rear.



Refrigeration Plant

	Day	Night	
Measured Ambient sound level	$L_{Aeq} = 62.2\text{dB}$ (no extraction)	$L_{Aeq} = 59.3\text{dB}$ (no extraction)	Measured on site average operating period
Residual Sound level	$L_{Aeq} = 52.1\text{dB}$	$L_{Aeq} = 48.1\text{dB}$	Measured on site, non-operational periods
Background Sound Level	$L_{A90} = 41.7\text{dB}$	$L_{A90} = 43.4\text{dB}$	Background taken from second monitoring point.
Reference period	60 minutes	15 minutes	Normal ref period,
Specific sound Level	$L_{Aeq} = 65.0\text{dB}$	$L_{Aeq} = 65.0\text{dB}$	From Monitoring
On-time Correction	$10 \cdot \lg(960/3600) = -5.7\text{dB}$	$10 \cdot \lg(480/900) = -2.7\text{dB}$	
Acoustic feature	+5dB	+5dB	+3dB Intermittency +2dB Tonality
Rating level	$65 - 5.7 + 3 + 2 = 64.3\text{dB}$	$65 - 2.7 + 3 + 2 = 67.3\text{dB}$	
Background sound level	$L_{A90} = 41.7\text{dB}$	$L_{A90} = 43.4\text{dB}$	
Excess of Rating level over background level	$(64.3 - 41.7) \text{ dB} = \mathbf{+22.6\text{dB}}$ indicates significant adverse impact	$(67.3 - 43.4) \text{ dB} = \mathbf{+23.9\text{dB}}$ indicates significant adverse impact	
Uncertainty	Background levels taken from non-operation periods on site and may not be representative of full day, especially the day period.		



Extraction & Refrigeration Plant

	Day	Night	
Measured Ambient sound level	$L_{Aeq} = 67.3\text{dB}$	$L_{Aeq} = 66.0\text{dB}$	Measured on site, average operating period
Residual Sound level	$L_{Aeq} = 52.1\text{dB}$	$L_{Aeq} = 48.1\text{dB}$	From non-operation periods on site
Background Sound Level	$L_{A90} = 41.7\text{dB}$	$L_{A90} = 43.4\text{dB}$	Background taken from non-operation periods on site.
Reference period	60 minutes	15 minutes	Normal ref period,
Specific sound Level	$L_{Aeq} = 67.2\text{dB}$	$L_{Aeq} = 65.9\text{dB}$	Calculated
On-time correction	-	-	No correction applied as extraction system on continuously
Acoustic feature	+5dB	+5dB	+3dB Intermittency +2dB Tonality
Rating level	73.2dB	70.9dB	
Background sound level	$L_{A90} = 41.7\text{dB}$	$L_{A90} = 43.4\text{dB}$	
Excess of Rating level over background level	(73.2-41.7) dB = +31.5dB indicates significant adverse impact	(70-43.4) dB = +26.6dB indicates significant adverse impact	
Uncertainty	Background levels taken from non-operation periods on site and may not be representative of full day, especially the day period.		Final design of site, use of buildings and sound level to be created is unknown. No confirmation that the nearest dwelling used will be built.



- 3.18 The BS4142 assessments indicate a significant adverse impact will be experienced.
- 3.19 However, when the identified mitigation measures are taken to account a combined façade reduction of >40dB is experienced for the internal environment. Thus, removing the excess sound rating level and reducing sound levels to those recommended within the guidance documents.
- 3.20 The table below shows the impact on the combined extraction and refrigeration plant rating level with the mitigation considered. .

	Day	Night	
Specific sound Level	$L_{Aeq} = 67.2\text{dB}$	$L_{Aeq} = 65.9\text{dB}$	Calculated
Mitigation	-40.2dB	-43.7dB	Provision of wall & glazing see Appendix B
Acoustic feature	+5dB	+5dB	+3dB Intermittency +2dB Tonality
Rating level	$L_{Aeq} = (67.2 - 40.2 + 5) = 32.0\text{dB}$	$L_{Aeq} = (65.9 - 43.7 + 5) = 27.2\text{dB}$	From non-operation periods on site
Background Sound Level	$L_{A90} = 41.7\text{dB}$	$L_{A90} = 43.4\text{dB}$	Background taken from non-operation periods on site.
Reference period	60 minutes	15 minutes	Normal ref period,
	Sound levels are below the identified background sound level, but more importantly below the day and night recommended average internal sound levels.		

- 3.21 The inclusion of the above mitigation measures will reduce the rating level from the extraction and refrigeration plant to below the recommended day and night internal sound levels. It should also be noted that the only habitable room to the rear façade is the second-floor kitchen/living room which would not normally be used during the night-time period.



Internal Transfer of Sound

- 3.22 It is important to ensure that the development prevents the internal transfer of sound from resulting in an adverse impact on the future occupants of the building or neighbouring properties.
- 3.23 The party wall to the neighbouring properties is a solid brick wall of 225mm thick, this provides a sound reduction of at least 56dB R_w , far exceeding the Building Regulations requirements.
- 3.24 In addition, the floor/ceiling between the ground and first floors needs to ensure no adverse impact between the commercial and residential units.
- 3.25 Specifications for the dividing structures have therefore been identified and are shown in Appendix C. These provide a 58dB R_w for the walls and 67dB R_w for the floor/ceiling.
- 3.26 The above specifications ensuring that the internal recommended 30dB(A) night-time sound level can still be achieved even in the unlikely event that a level of 85dB(A), equivalent to a busy manufacturing site and the upper action level within the Control of Noise at Work Regulations, is generated in the neighbouring property.



4 Conclusion

- 4.1 On-site monitoring has identified existing background sound levels will result in an adverse impact on the proposed development. As such additional mitigation measures are required.
- 4.2 These have been identified as standard double-glazing units with trickle window vents to ensure a suitable level of ventilation is achieved.
- 4.3 Specifications for internal structures have also been identified to ensure no adverse impact is experienced between the floors of the development.
- 4.4 The inclusion of the above mitigation measures to all habitable rooms will ensure that the internal and external sound levels are acceptable and will result in a No Observe Effect on the future residents in line with the Noise Policy Statement for England.
- 4.5 As such the development will meet the objectives of the National Planning Policy Framework in ensuring that no significant adverse impact is experienced by the future residents. The development is therefore considered to be acceptable in terms of noise.



Figure 1 – Aerial Photograph



Figure 2 – Proposed Layout Plan





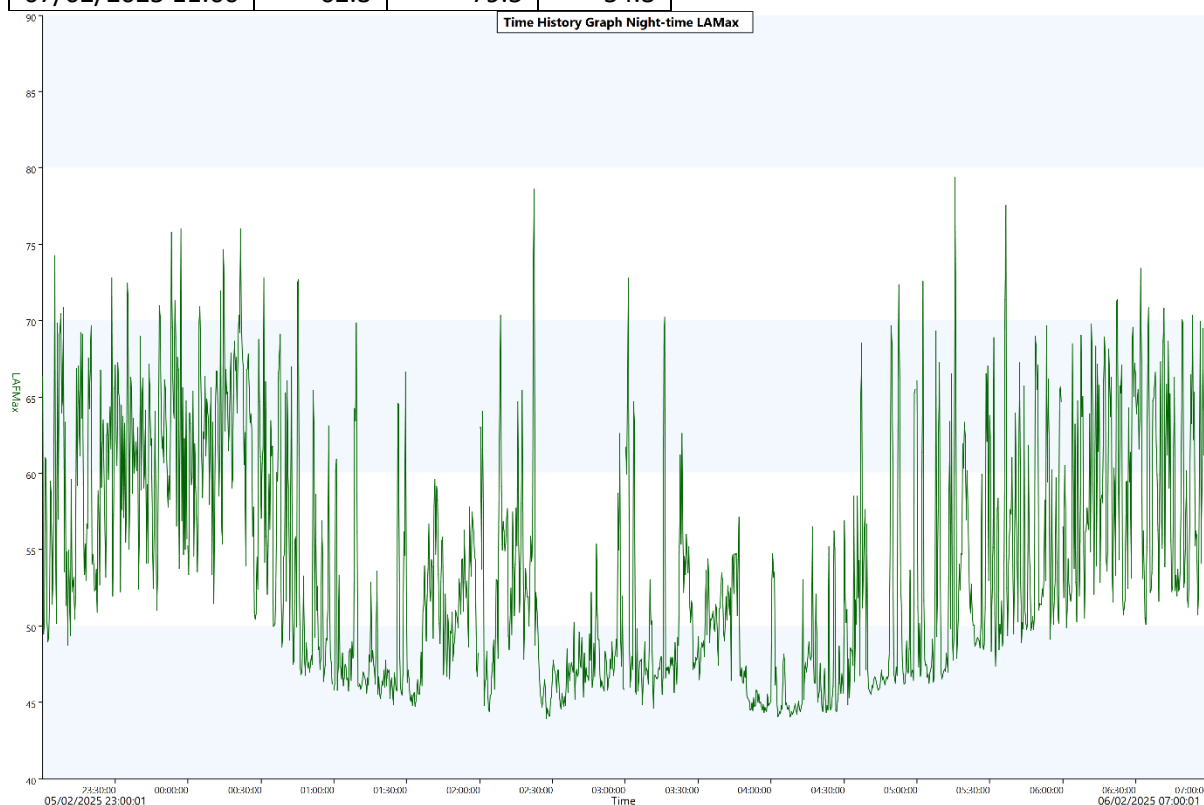
Appendix A – Full Monitoring Results

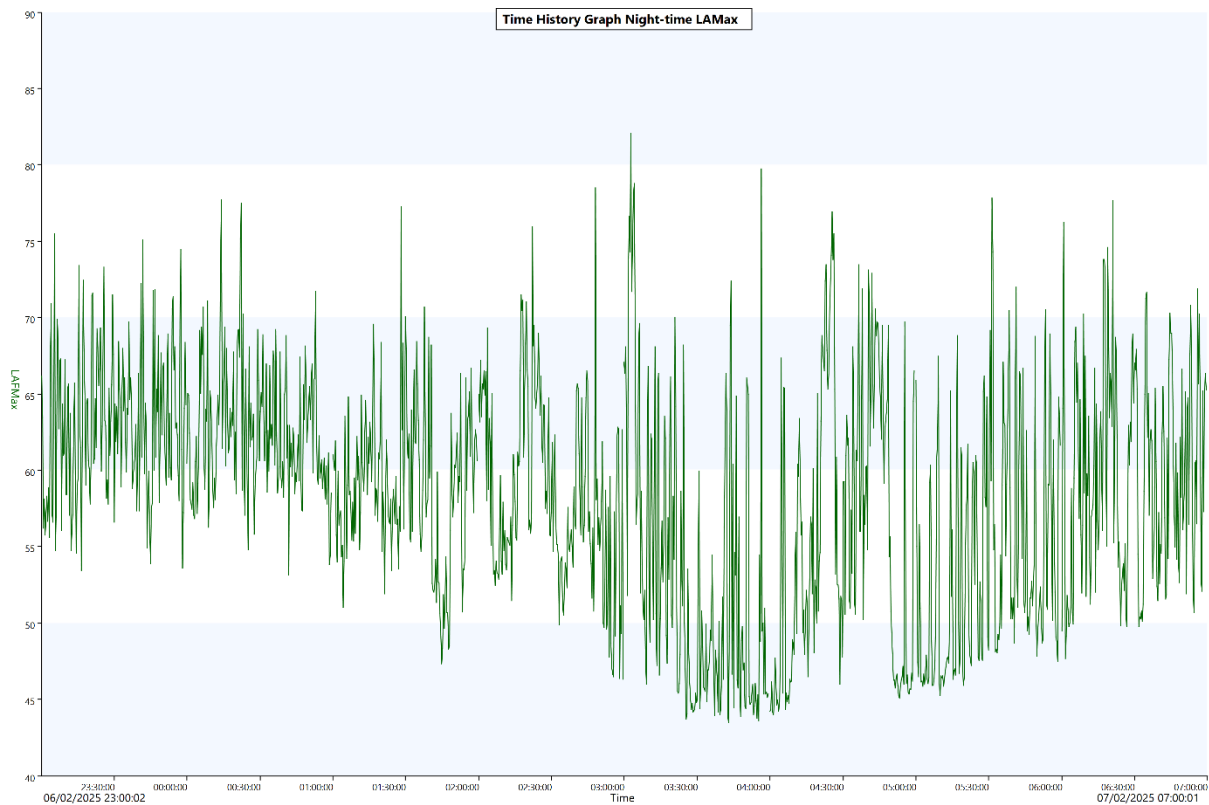
Front

Time	L _{Aeq} (dB)	L _{AMax} (dB)	L _{A90} (dB)
05/02/2025 13:00	63.5	85.1	55.9
05/02/2025 14:00	66.8	92.3	57.0
05/02/2025 15:00	63.4	88.5	54.6
05/02/2025 16:00	64.8	91.7	56.9
05/02/2025 17:00	61.7	88.9	53.7
05/02/2025 18:00	63.5	90.1	54.0
05/02/2025 19:00	63.8	93.2	51.0
05/02/2025 20:00	59.3	88.4	50.0
05/02/2025 21:00	58.7	83.8	49.7
05/02/2025 22:00	58.0	79.6	48.5
05/02/2025 23:00	57.2	76.0	47.6
06/02/2025 00:00	56.1	76.0	45.6
06/02/2025 01:00	47.9	69.8	43.7
06/02/2025 02:00	51.0	78.6	43.6
06/02/2025 03:00	48.4	72.8	43.6
06/02/2025 04:00	50.8	72.3	43.4
06/02/2025 05:00	55.0	79.4	45.9
06/02/2025 06:00	57.6	73.4	49.4
06/02/2025 07:00	64.8	80.1	51.5
06/02/2025 08:00	62.0	81.8	53.5
06/02/2025 09:00	62.5	89.3	54.7
06/02/2025 10:00	61.6	81.4	53.7
06/02/2025 11:00	61.7	81.4	54.4
06/02/2025 12:00	61.2	87.2	52.1
06/02/2025 13:00	62.2	88.2	53.7
06/02/2025 14:00	62.8	82.6	54.9
06/02/2025 15:00	61.9	82.5	53.0
06/02/2025 16:00	62.7	81.8	53.7
06/02/2025 17:00	61.5	83.5	53.5
06/02/2025 18:00	61.3	86.9	53.5
06/02/2025 19:00	64.0	87.3	54.0
06/02/2025 20:00	65.6	90.6	54.9
06/02/2025 21:00	59.0	80.8	51.5
06/02/2025 22:00	58.7	72.7	51.3
06/02/2025 23:00	58.7	75.5	51.1
07/02/2025 00:00	57.0	77.7	48.9
07/02/2025 01:00	53.1	77.2	46.6
07/02/2025 02:00	53.4	78.5	45.4
07/02/2025 03:00	52.8	82.1	42.9



07/02/2025 04:00	53.5	76.9	43.7
07/02/2025 05:00	54.6	77.8	44.8
07/02/2025 06:00	58.2	77.7	48.3
07/02/2025 07:00	60.3	80.3	50.3
07/02/2025 08:00	61.8	79.6	53.2
07/02/2025 09:00	61.7	86.6	54.7
07/02/2025 10:00	61.5	82.7	53.6
07/02/2025 11:00	62.3	79.5	54.3





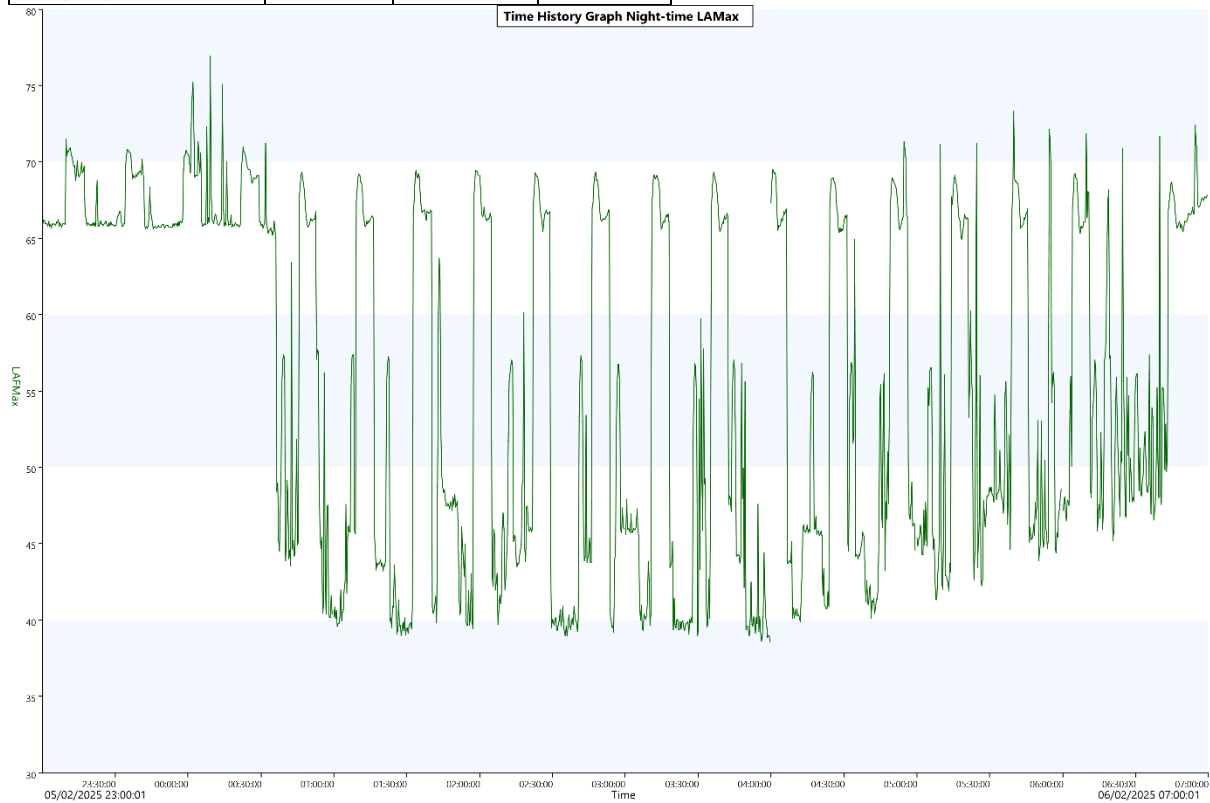


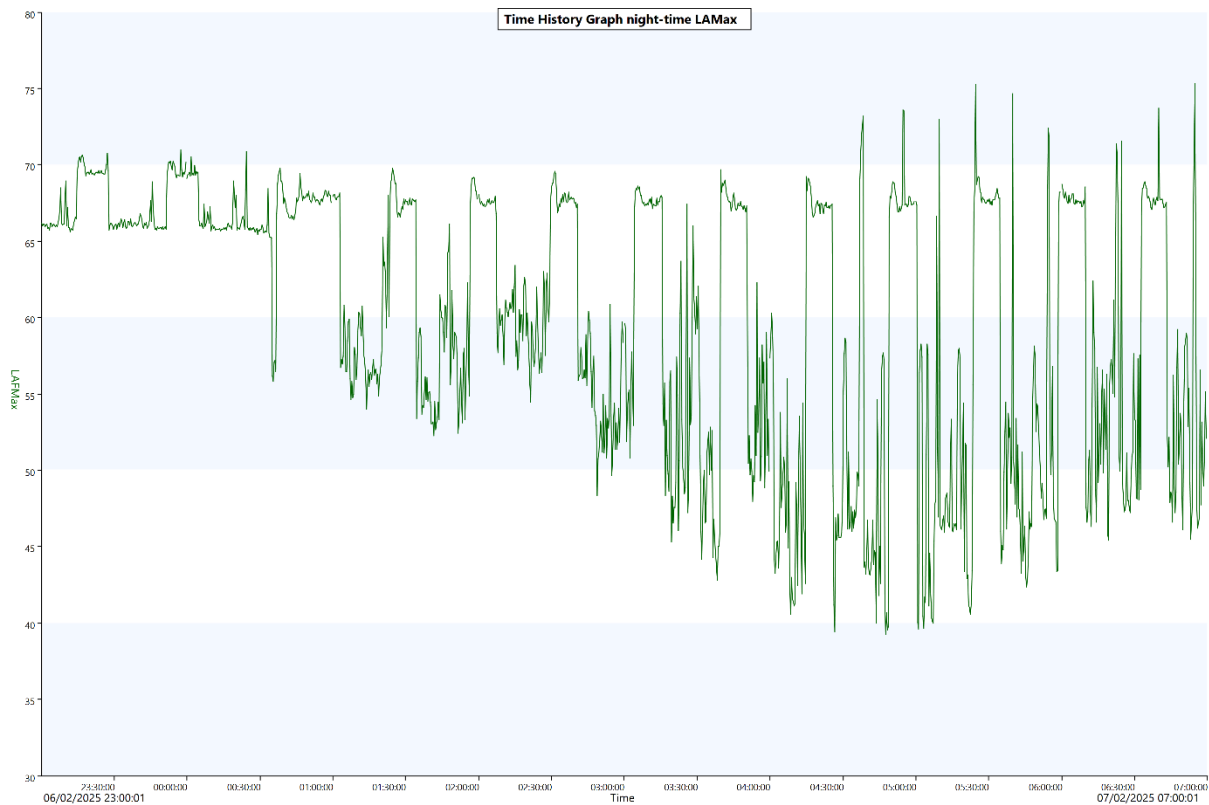
Rear

Time	L _{Aeq} (dB)	L _{AMax} (dB)	L _{A90} (dB)
05/02/2025 13:00	67.8	73.2	64.7
05/02/2025 14:00	67.1	75.0	64.6
05/02/2025 15:00	66.9	75.0	64.6
05/02/2025 16:00	66.5	75.7	64.6
05/02/2025 17:00	66.4	73.8	64.7
05/02/2025 18:00	66.8	74.6	64.5
05/02/2025 19:00	66.6	73.9	64.5
05/02/2025 20:00	66.7	73.9	64.5
05/02/2025 21:00	66.4	76.2	64.6
05/02/2025 22:00	66.8	75.7	64.7
05/02/2025 23:00	66.4	71.5	64.7
06/02/2025 00:00	65.1	76.9	42.7
06/02/2025 01:00	60.8	69.4	38.0
06/02/2025 02:00	61.1	69.4	38.1
06/02/2025 03:00	59.8	69.4	37.9
06/02/2025 04:00	61.4	71.3	39.2
06/02/2025 05:00	59.9	73.3	41.6
06/02/2025 06:00	62.0	72.4	45.3
06/02/2025 07:00	61.4	72.3	46.6
06/02/2025 08:00	60.7	72.3	47.6
06/02/2025 09:00	66.5	74.7	64.7
06/02/2025 10:00	66.8	76.1	64.6
06/02/2025 11:00	68.4	73.7	64.6
06/02/2025 12:00	66.5	73.8	64.4
06/02/2025 13:00	67.3	74.3	64.5
06/02/2025 14:00	66.4	76.2	64.5
06/02/2025 15:00	67.3	74.7	64.6
06/02/2025 16:00	66.6	74.6	64.6
06/02/2025 17:00	67.1	81.7	64.7
06/02/2025 18:00	66.6	77.4	64.7
06/02/2025 19:00	67.9	74.9	64.8
06/02/2025 20:00	67.2	74.3	64.9
06/02/2025 21:00	66.9	75.0	64.7
06/02/2025 22:00	67.0	76.4	64.9
06/02/2025 23:00	66.8	71.0	64.8
07/02/2025 00:00	66.0	70.9	64.5
07/02/2025 01:00	61.7	69.8	48.6
07/02/2025 02:00	61.9	69.6	46.7
07/02/2025 03:00	62.3	69.7	40.3
07/02/2025 04:00	61.9	73.6	38.7
07/02/2025 05:00	60.3	75.3	39.9



07/02/2025 06:00	62.2	75.3	44.7
07/02/2025 07:00	62.8	75.1	47.0
07/02/2025 08:00	64.0	75.3	47.2
07/02/2025 09:00	65.9	74.9	63.9
07/02/2025 10:00	67.2	84.2	64.3





Appendix B – Break-in Calculations

Front First floor

Living Room

Day

Outdoor To Indoor Sound Transmission (v10.0.6)

Program copyright Marshall Day Acoustics

Margin of error is generally within ± 3 dB

- Key No. 2594

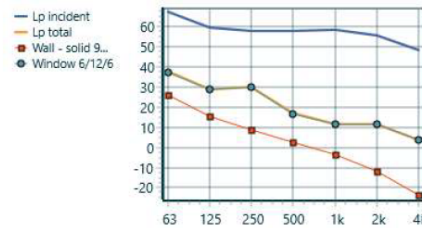
Job Name:

Job No.:

Initials:info

Date:24/02/2025

File Name:



Octave Band Centre Frequency (Hz)								
Source	63	125	250	500	1k	2k	4k	Overall dBA
Incident sound level (freefield)	67.5	59.9	58.2	58.0	58.7	55.7	48.7	62.4
Path								
Element 1, STL	-37	-40	-45	-51	-58	-63	-68	6.3
Facade Shape factor Level diff.	0	0	0	0	0	0	0	
Insertion Loss	0	0	0	0	0	0	0	
Area (+10LogA), 6 m²	7.7	7.7	7.7	7.7	7.7	7.7	7.7	
Element sound level contribution	26	15	9	3	-4	-12	-24	
Element 2, STL	-24	-25	-22	-35	-41	-38	-39	23.6
Facade Shape factor Level diff.	0	0	0	0	0	0	0	
Insertion Loss	0	0	0	0	0	0	0	
Area (+10LogA), 4 m²	5.9	5.9	5.9	5.9	5.9	5.9	5.9	
Element sound level contribution	37	29	30	17	12	12	4	
Receiver								
Room volume (-10LogV), 100.50 m³	-9.0	-9.0	-9.0	-9.0	-9.0	-9.0	-9.0	23.7
Reverberation time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
RT (+10LogT)	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	
Equation Constant	11	11	11	11	11	11	11	
Room sound level	38	29	30	17	12	12	4	
Level difference								
D2m,nT	33.0	34.1	31.3	44.2	50.2	47.3	48.3	LpAinc - LpArevT0 38.8

** Element descriptions:

#1: Wall - solid 9inch

Wall (Single):

• Panel 1: 1 x 225 mm Brick

• Details: Panel Size 2.7 m x 4.0 m, Partition surface mass = 360 kg/m²

#2: Window 6/12/6

Glazing (Double):

• Pane 1: 1 x 6 mm Glass

• Cavity: 12 mm

• Pane 2: 1 x 6 mm Glass

• Details: Energy-based model; Panel Size 1.3 m x 1.5 m, Partition surface mass = 29.2 kg/m², Mass-air-mass resonant frequency = 200 Hz

Night

Outdoor To Indoor Sound Transmission (v10.0.6)

Program copyright Marshall Day Acoustics

Margin of error is generally within ± 3 dB

- Key No. 2594

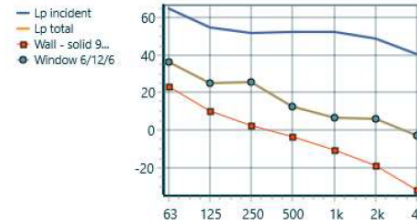
Job Name:

Job No.:

Date: 24/02/2025

File Name:

Initials: info



Octave Band Centre Frequency (Hz)							
Source	63	125	250	500	1k	2k	4k
Incident sound level (freefield)	64.7	54.4	51.9	52.0	52.0	48.7	40.6
Path							
Element 1, STL	-37	-40	-45	-51	-58	-63	-68
Facade Shape factor Level diff.	0	0	0	0	0	0	0
Insertion Loss	0	0	0	0	0	0	0
Area (+10LogA), 6 m ²	7.7	7.7	7.7	7.7	7.7	7.7	7.7
Element sound level contribution	23	10	2	-3	-10	-19	-32
Element 2, STL	-24	-25	-22	-35	-41	-38	-39
Facade Shape factor Level diff.	0	0	0	0	0	0	0
Insertion Loss	0	0	0	0	0	0	0
Area (+10LogA), 6 m ²	7.7	7.7	7.7	7.7	7.7	7.7	7.7
Element sound level contribution	36	25	25	13	7	6	-3
Receiver							
Room volume (-10LogV), 100.50 m ³	-9.0	-9.0	-9.0	-9.0	-9.0	-9.0	-9.0
Reverberation time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5
RT (+10LogT)	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0
Equation Constant	11	11	11	11	11	11	11
Room sound level	37	25	26	13	7	6	-3
Level difference							
D2m,nT	31.3	32.4	29.5	42.4	48.5	45.5	46.6
							LpAinc - LpARev,T0
							36.4

** Element descriptions:

#1: Wall - solid 9inch

Wall (Single):

- Panel 1: 1 x 225 mm Brick
- Details: Panel Size: 2.7 m x 4.0 m, Partition surface mass = 360 kg/m²

#2: Window 6/12/6

Glazing (Double):

- Pane 1: 1 x 6 mm Glass
- Cavity: 12 mm
- Pane 2: 1 x 6 mm Glass
- Details: Energy based model, Panel Size: 1.3 m x 1.5 m, Partition surface mass = 29.2 kg/m², Mass-air mass resonant frequency = 200 Hz

Night-time LAMax

Outdoor To Indoor Sound Transmission (v10.0.6)

Program copyright Marshall Day Acoustics

Margin of error is generally within ± 3 dB

- Key No. 2594

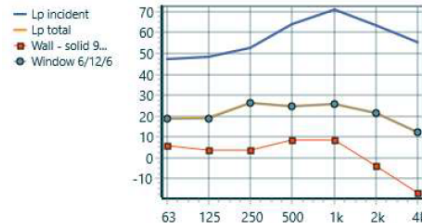
Job Name:

Job No.:

Date: 24/02/2025

File Name:

Initials: info



Octave Band Centre Frequency (Hz)							
Source	63	125	250	500	1k	2k	4k
Incident sound level (freefield)	47.2	48.3	52.9	64.1	71.0	63.7	55.6
Path							
Element 1, STL	-37	-40	-45	-51	-58	-63	-68
Facade Shape factor Level diff.	0	0	0	0	0	0	0
Insertion Loss	0	0	0	0	0	0	0
Area (+10LogA), 6 m²	7.7	7.7	7.7	7.7	7.7	7.7	7.7
Element sound level contribution	6	4	3	9	9	-4	-17
Element 2, STL	-24	-25	-22	-35	-41	-38	-39
Facade Shape factor Level diff.	0	0	0	0	0	0	0
Insertion Loss	0	0	0	0	0	0	0
Area (+10LogA), 6 m²	7.7	7.7	7.7	7.7	7.7	7.7	7.7
Element sound level contribution	19	19	26	25	26	21	12
Receiver							
Room volume (-10LogV), 100.50 m³	-9.0	-9.0	-9.0	-9.0	-9.0	-9.0	-9.0
Reverberation time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5
RT (+10LogT)	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0
Equation Constant	11	11	11	11	11	11	11
Room sound level	19	19	27	25	26	21	12
Level difference							
D2m,nT	31.3	32.4	29.5	42.4	48.5	45.5	46.6
							LpAinc - LpArev,T0
							43.5

** Element descriptions:

#1: Wall - solid 9inch

Wall (Single):

• Panel 1: 1 x 225 mm Brick

• Details: Panel Size 2.7 m x 4.0 m, Partition surface mass = 360 kg/m²

#2: Window 6/12/6

Glazing (Double):

• Pane 1: 1 x 6 mm Glass

• Cavity: 12 mm

• Pane 2: 1 x 6 mm Glass

• Details: Energy-based model, Panel Size 1.3 m x 1.5 m, Partition surface mass = 29.2 kg/m², Mass-air-mass resonant frequency = 200 Hz

Bedroom Room

Day

Outdoor To Indoor Sound Transmission (v10.0.6)

Program copyright Marshall Day Acoustics

Margin of error is generally within ± 3 dB

- Key No. 2594

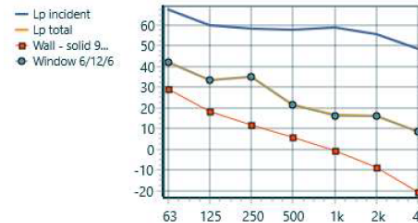
Job Name:

Job No.:

Initials:info

Date:24/02/2025

File Name:



Octave Band Centre Frequency (Hz)								
Source	63	125	250	500	1k	2k	4k	Overall dBA
Incident sound level (freefield)	67.5	59.9	58.2	58.0	58.7	55.7	48.7	62.4
Path								
Element 1 , STL	-37	-40	-45	-51	-58	-63	-68	9.3
Facade Shape factor Level diff.	0	0	0	0	0	0	0	
Insertion Loss	0	0	0	0	0	0	0	
Area (+10LogA), 4 m²	5.9	5.9	5.9	5.9	5.9	5.9	5.9	
Element sound level contribution	29	18	12	6	-1	-9	-21	
Element 2 , STL	-24	-25	-22	-35	-41	-38	-39	28.3
Facade Shape factor Level diff.	0	0	0	0	0	0	0	
Insertion Loss	0	0	0	0	0	0	0	
Area (+10LogA), 4 m²	5.9	5.9	5.9	5.9	5.9	5.9	5.9	
Element sound level contribution	42	33	35	22	16	16	8	
Receiver								
Room volume (-10LogV), 33.74 m³	-4.3	-4.3	-4.3	-4.3	-4.3	-4.3	-4.3	28.4
Reverberation time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
RT (+10LogT)	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	
Equation Constant	11	11	11	11	11	11	11	
Room sound level	42	34	35	22	16	16	8	
Level difference								
D2m,nT	28.4	29.4	26.6	39.5	45.5	42.6	43.6	LpAinc - LpArev,T0
	28.4	29.4	26.6	39.5	45.5	42.6	43.6	34.0

** Element descriptions:

#1: Wall - solid 9inch

Wall (Single):

• Panel 1: 1 x 225 mm Brick

• Details: Panel Size 2.7 m x 4.0 m, Partition surface mass = 360 kg/m²

#2: Window 6/12/6

Glazing (Double):

• Pane 1: 1 x 6 mm Glass

• Cavity: 12 mm

• Pane 2: 1 x 6 mm Glass

• Details: Energy-based model, Panel Size 1.3 m x 1.5 m, Partition surface mass = 29.2 kg/m², Mass-air-mass resonant frequency = 200 Hz

Night

Outdoor To Indoor Sound Transmission (v10.0.6)

Program copyright Marshall Day Acoustics

Margin of error is generally within ± 3 dB

- Key No. 2594

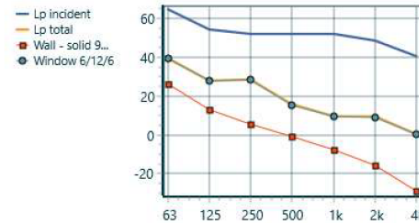
Job Name:

Job No.:

Date: 24/02/2025

File Name:

Initials: info



Octave Band Centre Frequency (Hz)							
Source	63	125	250	500	1k	2k	4k
Incident sound level (freefield)	64.7	54.4	51.9	52.0	52.0	48.7	40.6
Path							
Element 1, STL	-37	-40	-45	-51	-58	-63	-68
Facade Shape factor Level diff.	0	0	0	0	0	0	0
Insertion Loss	0	0	0	0	0	0	0
Area (+10LogA), 4 m²	5.8	5.8	5.8	5.8	5.8	5.8	5.8
Element sound level contribution	26	13	5	-1	-8	-16	-29
Element 2, STL	-24	-25	-22	-35	-41	-38	-39
Facade Shape factor Level diff.	0	0	0	0	0	0	0
Insertion Loss	0	0	0	0	0	0	0
Area (+10LogA), 4 m²	5.9	5.9	5.9	5.9	5.9	5.9	5.9
Element sound level contribution	39	28	28	16	10	9	0
Receiver							
Room volume (-10LogV), 33.74 m³	-4.3	-4.3	-4.3	-4.3	-4.3	-4.3	-4.3
Reverberation time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5
RT (+10LogT)	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0
Equation Constant	11	11	11	11	11	11	11
Room sound level	39	28	28	16	10	9	0
Level difference							
D2m,nT	28.4	29.4	26.6	39.5	45.5	42.6	43.6
							LpAinc - LpARev,T0
							33.4

** Element descriptions:

#1: Wall - solid 9inch

Wall (Single):

- Panel 1: 1 x 225 mm Brick
- Details: Panel Size: 2.7 m x 4.0 m, Partition surface mass = 360 kg/m²

#2: Window 6/12/6

Glazing (Double):

- Pane 1: 1 x 6 mm Glass
- Cavity: 12 mm
- Pane 2: 1 x 6 mm Glass
- Details: Energy-based model, Panel Size: 1.3 m x 1.5 m, Partition surface mass = 29.2 kg/m², Mass-air-mass resonant frequency = 200 Hz

Night-time L_{AMax}

Outdoor To Indoor Sound Transmission (v10.0.6)

Program copyright Marshall Day Acoustics

Margin of error is generally within ± 3 dB

- Key No. 2594

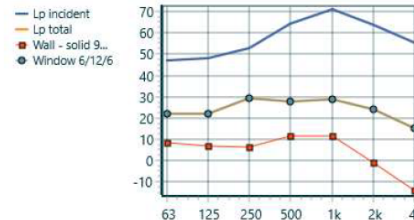
Job Name:

Job No.:

Date: 24/02/2025

File Name:

Initials: info



Octave Band Centre Frequency (Hz)							
Source	63	125	250	500	1k	2k	4k
Incident sound level (freefield)	47.2	48.3	52.9	64.1	71.0	63.7	55.6
Overall dBA							
72.4							
Path							
Element 1, STL	-37	-40	-45	-51	-58	-63	-68
Facade Shape factor Level diff.	0	0	0	0	0	0	0
Insertion Loss	0	0	0	0	0	0	0
Area (+10LogA), 4 m ²	5.8	5.8	5.8	5.8	5.8	5.8	5.8
Element sound level contribution	9	7	6	12	11	-1	-14
13.6							
Element 2, STL	-24	-25	-22	-35	-41	-38	-39
Facade Shape factor Level diff.	0	0	0	0	0	0	0
Insertion Loss	0	0	0	0	0	0	0
Area (+10LogA), 4 m ²	5.9	5.9	5.9	5.9	5.9	5.9	5.9
Element sound level contribution	22	22	29	28	29	24	15
31.8							
Receiver							
Room volume (-10LogV), 33.74 m ³	-4.3	-4.3	-4.3	-4.3	-4.3	-4.3	-4.3
Reverberation time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5
RT (+10LogT)	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0
Equation Constant	11	11	11	11	11	11	11
Room sound level	22	22	30	28	29	24	15
31.9							
Level difference							
D2m,nT	28.4	29.4	26.5	39.5	45.5	42.6	43.6
LpAinc - LpARev,T0							
40.5							

** Element descriptions:

#1: Wall - solid 9inch

Wall (Single):

• Panel 1: 1 x 225 mm Brick

• Details: Panel Size 2.7 m x 4.0 m, Partition surface mass = 360 kg/m²

#2: Window 6/12/6

Glazing (Double):

• Pane 1: 1 x 6 mm Glass

• Cavity: 12 mm

• Pane 2: 1 x 6 mm Glass

• Details: Energy-based model, Panel Size 1.3 m x 1.5 m, Partition surface mass = 29.2 kg/m², Mass-air-mass resonant frequency = 200 Hz

Second floor front Bedroom

Day

Outdoor To Indoor Sound Transmission (v10.0.6)

Program copyright Marshall Day Acoustics

Margin of error is generally within ± 3 dB

- Key No. 2594

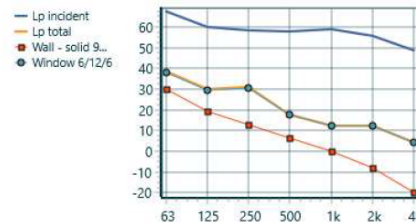
Job Name:

Job No.:

Date: 24/02/2025

File Name:

Initials: info



Octave Band Centre Frequency (Hz)								
Source	63	125	250	500	1k	2k	4k	Overall dBA
Incident sound level (freefield)	67.5	59.9	58.2	58.0	58.7	55.7	48.7	62.4
Path								
Element 1, STL	-37	-40	-45	-51	-58	-63	-68	10.3
Facade Shape factor Level diff.	0	0	0	0	0	0	0	
Insertion Loss	0	0	0	0	0	0	0	
Area (+10LogA), 13 m²	11.3	11.3	11.3	11.3	11.3	11.3	11.3	
Element sound level contribution	30	19	13	7	0	-8	-20	
Element 2, STL	-24	-25	-22	-35	-41	-38	-39	24.4
Facade Shape factor Level diff.	0	0	0	0	0	0	0	
Insertion Loss	0	0	0	0	0	0	0	
Area (+10LogA), 4 m²	6.4	6.4	6.4	6.4	6.4	6.4	6.4	
Element sound level contribution	38	30	31	18	12	12	4	
Receiver								
Room volume (-10LogV), 92.47 m³	-8.7	-8.7	-8.7	-8.7	-8.7	-8.7	-8.7	24.6
Reverberation time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
RT (+10LogT)	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	
Equation Constant	11	11	11	11	11	11	11	
Room sound level	39	30	31	18	13	12	4	
Level difference								
D2m,nT	31.9	33.1	30.5	43.2	49.3	46.5	47.5	LpAinc - LpAREv,T0 37.9

** Element descriptions:

#1: Wall - solid 9inch

Wall (Single):

• Panel 1: 1 x 225 mm Brick

• Details: Panel Size: 2.7 m x 4.0 m, Partition surface mass = 360 kg/m²

#2: Window 6/12/6

Glazing (Double):

• Pane 1: 1 x 6 mm Glass

• Cavity: 12 mm

• Pane 2: 1 x 6 mm Glass

• Details: Energy-based model, Panel Size: 1.3 m x 1.5 m, Partition surface mass = 29.2 kg/m², Mass-air mass resonant frequency = 200 Hz

Night

Outdoor To Indoor Sound Transmission (v10.0.6)

Program copyright Marshall Day Acoustics

Margin of error is generally within ± 3 dB

- Key No. 2594

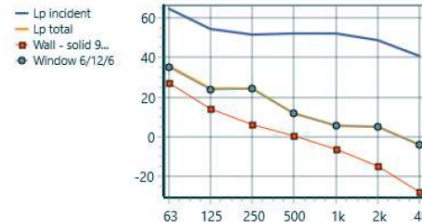
Job Name:

Job No.:

Date: 24/02/2025

File Name:

Initials: info



Octave Band Centre Frequency (Hz)							
Source	63	125	250	500	1k	2k	4k
Incident sound level (freefield)	64.7	54.4	51.9	52.0	52.0	48.7	40.6
Overall dBA							
55.8							
Path							
Element 1, STL	-37	-40	-45	-51	-58	-63	-68
Facade Shape factor Level diff.	0	0	0	0	0	0	0
Insertion Loss	0	0	0	0	0	0	0
Area (+10LogA), 13 m²	11.3	11.3	11.3	11.3	11.3	11.3	11.3
Element sound level contribution	27	14	6	1	-6	-15	-28
5.2							
Element 2, STL	-24	-25	-22	-35	-41	-38	-39
Facade Shape factor Level diff.	0	0	0	0	0	0	0
Insertion Loss	0	0	0	0	0	0	0
Area (+10LogA), 4 m²	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Element sound level contribution	35	24	25	12	6	5	-4
18.4							
Receiver							
Room volume (-10LogV), 92.47 m³	-8.7	-8.7	-8.7	-8.7	-8.7	-8.7	-8.7
Reverberation time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5
RT (+10LogT)	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0
Equation Constant	11	11	11	11	11	11	11
Room sound level	36	24	25	12	6	5	-4
18.6							
Level difference							
D2m,nT	31.9	33.1	30.5	43.2	49.3	46.5	47.5
LpAinc - LpARev,T0							
37.2							

** Element descriptions:

#1: Wall - solid 9inch

Wall (Single):

• Panel 1: 1 x 225 mm Brick

• Details: Panel Size 2.7 m x 4.0 m, Partition surface mass = 360 kg/m²

#2: Window 6/12/6

Glazing (Double):

• Pane 1: 1 x 6 mm Glass

• Cavity: 12 mm

• Pane 2: 1 x 6 mm Glass

• Details: Energy based model, Panel Size 1.3 m x 1.5 m, Partition surface mass = 29.2 kg/m², Mass-air mass resonant frequency = 200 Hz

Night-time LAMax

Outdoor To Indoor Sound Transmission (v10.0.6)

Program copyright Marshall Day Acoustics

Margin of error is generally within ± 3 dB

- Key No. 2594

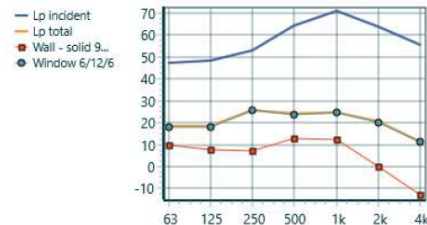
Job Name:

Job No.:

Date: 24/02/2025

File Name:

Initials: info



Octave Band Centre Frequency (Hz)							
Source	63	125	250	500	1k	2k	4k
Incident sound level (freefield)	47.2	48.3	52.9	64.1	71.0	63.7	55.6
Path							
Element 1, STL	-37	-40	-45	-51	-58	-63	-68
Facade Shape factor Level diff.	0	0	0	0	0	0	0
Insertion Loss	0	0	0	0	0	0	0
Area (+10LogA), 13 m ²	11.3	11.3	11.3	11.3	11.3	11.3	11.3
Element sound level contribution	10	8	7	13	13	0	-13
Element 2, STL	-24	-25	-22	-35	-41	-38	-39
Facade Shape factor Level diff.	0	0	0	0	0	0	0
Insertion Loss	0	0	0	0	0	0	0
Area (+10LogA), 4 m ²	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Element sound level contribution	18	18	26	24	25	20	11
Receiver							
Room volume (-10LogV), 92.47 m ³	-8.7	-8.7	-8.7	-8.7	-8.7	-8.7	-8.7
Reverberation time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5
RT (+10LogT)	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0
Equation Constant	11	11	11	11	11	11	11
Room sound level	18	18	26	24	25	20	11
Level difference							
D2m,nT	31.9	33.1	30.5	43.2	49.3	46.5	47.5
							LpAinc - LpArev,T0
							44.3

** Element descriptions:

#1: Wall - solid 9inch

Wall (Single):

• Panel 1: 1 x 225 mm Brick

• Details: Panel Size 2.7 m x 4.0 m, Partition surface mass = 360 kg/m²

#2: Window 6/12/6

Glazing (Double):

• Pane 1: 1 x 6 mm Glass

• Cavity: 12 mm

• Pane 2: 1 x 6 mm Glass

• Details: Energy-based model, Panel Size 1.3 m x 1.5 m, Partition surface mass = 29.2 kg/m², Mass-air-mass resonant frequency = 200 Hz

Second floor Rear Kitchen/living

Day

Outdoor To Indoor Sound Transmission (v10.0.6)

Program copyright Marshall Day Acoustics

Margin of error is generally within ± 3 dB

- Key No. 2594

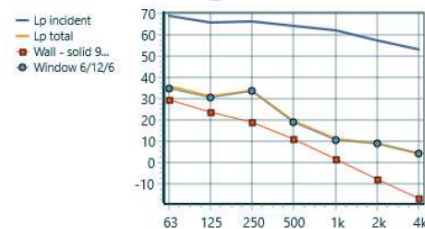
Job Name:

Job No.:

Date: 24/02/2025

File Name:

Initials: info



Octave Band Centre Frequency (Hz)								
Source	63	125	250	500	1k	2k	4k	Overall dBA
Incident sound level (freefield)	69.2	66.1	66.3	64.5	62.2	57.6	53.6	66.8
Path								
Element 1 , STL	-37	-40	-45	-51	-58	-63	-68	14.3
Facade Shape factor Level diff.	0	0	0	0	0	0	0	
Insertion Loss	0	0	0	0	0	0	0	
Area (+10LogA), 8 m²	8.9	8.9	8.9	8.9	8.9	8.9	8.9	
Element sound level contribution	30	24	19	11	2	-8	-17	
Element 2 , STL	-24	-25	-22	-35	-41	-38	-39	26.4
Facade Shape factor Level diff.	0	0	0	0	0	0	0	
Insertion Loss	0	0	0	0	0	0	0	
Area (+10LogA), 1 m²	0.8	0.8	0.8	0.8	0.8	0.8	0.8	
Element sound level contribution	35	31	34	19	11	9	4	
Receiver								
Room volume (-10LogV), 83.05 m³	-8.2	-8.2	-8.2	-8.2	-8.2	-8.2	-8.2	26.6
Reverberation time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
RT (+10LogT)	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	
Equation Constant	11	11	11	11	11	11	11	
Room sound level	36	31	34	20	11	9	4	
Level difference								
D2m,nT	36.4	37.8	35.5	48.0	54.1	51.5	52.6	LpAinc - LpArev,T0
								40.2

** Element descriptions:

#1: Wall - solid 9 inch

Wall (Single):

• Panel 1: 1 x 225 mm Brick

• Details: Panel Size: 2.7 m x 4.0 m, Partition surface mass = 360 kg/m²

#2: Window 6/12/6

Glazing (Double):

• Pane 1: 1 x 6 mm Glass

• Cavity: 12 mm

• Pane 2: 1 x 6 mm Glass

• Details: Energy-based model, Panel Size: 1.3 m x 1.5 m, Partition surface mass = 29.2 kg/m², Mass-air-mass resonant frequency = 200 Hz

Night

Outdoor To Indoor Sound Transmission (v10.0.6)

Program copyright Marshall Day Acoustics

Margin of error is generally within ± 3 dB

- Key No. 2594

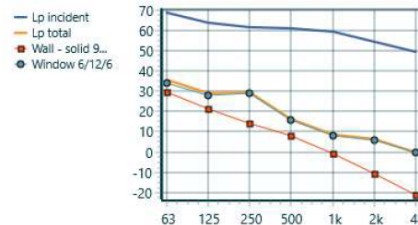
Job Name:

Initials:info

Job No.:

Date:24/02/2025

File Name:



Octave Band Centre Frequency (Hz)								
Source	63	125	250	500	1k	2k	4k	Overall dBA
Incident sound level (freefield)	68.7	63.5	61.7	61.2	59.4	54.6	49.2	63.5
Path								
Element 1 , STL	-37	-40	-45	-51	-58	-63	-68	11.1
Facade Shape factor Level diff.	0	0	0	0	0	0	0	
Insertion Loss	0	0	0	0	0	0	0	
Area (+10LogA), 8 m²	8.9	8.9	8.9	8.9	8.9	8.9	8.9	
Element sound level contribution	29	21	14	8	-1	-11	-21	
Element 2 , STL	-24	-25	-22	-35	-41	-38	-39	22.2
Facade Shape factor Level diff.	0	0	0	0	0	0	0	
Insertion Loss	0	0	0	0	0	0	0	
Area (+10LogA), 1 m²	0.8	0.8	0.8	0.8	0.8	0.8	0.8	
Element sound level contribution	34	28	29	16	8	6	0	
Receiver								
Room volume (-10LogV), 83.05 m³	-8.2	-8.2	-8.2	-8.2	-8.2	-8.2	-8.2	22.6
Reverberation time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
RT (+10LogT)	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	
Equation Constant	11	11	11	11	11	11	11	
Room sound level	35	29	29	16	8	6	0	
Level difference								
D2m,nT	36.4	37.8	35.5	48.0	54.1	51.5	52.6	LpAinc - LpARev,T0 41.0

** Element descriptions:

#1: Wall - solid 9inch

Wall (Single):

• Panel 1: 1 x 225 mm Brick

• Details: Panel Size 2.7 m x 4.0 m, Partition surface mass = 360 kg/m²

#2: Window 6/12/6

Glazing (Double):

• Pane 1: 1 x 6 mm Glass

• Cavity: 12 mm

• Pane 2: 1 x 6 mm Glass

• Details: Energy-based model, Panel Size 1.3 m x 1.5 m, Partition surface mass = 29.2 kg/m², Mass-air-mass resonant frequency = 200 Hz

Night-time L_{AMax}

Outdoor To Indoor Sound Transmission (v10.0.6)

Program copyright Marshall Day Acoustics

Margin of error is generally within ± 3 dB

- Key No. 2594

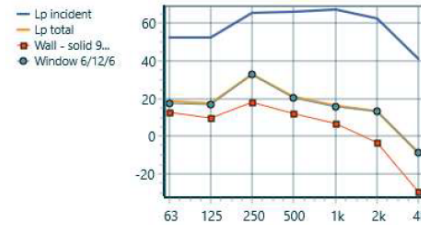
Job Name:

Job No.:

Date: 24/02/2025

File Name:

Initials: info



Octave Band Centre Frequency (Hz)							
Source	63	125	250	500	1k	2k	4k
Incident sound level (freefield)	52.0	52.2	55.2	55.6	66.9	61.9	41.1
Path							
Element 1, STL	-37	-40	-45	-51	-58	-63	-68
Facade Shape factor Level diff.	0	0	0	0	0	0	0
Insertion Loss	0	0	0	0	0	0	0
Area (+10LogA), 8 m ²	8.9	8.9	8.9	8.9	8.9	8.9	8.9
Element sound level contribution	13	10	18	12	7	-3	-29
Element 2, STL	-24	-25	-22	-35	-41	-38	-39
Facade Shape factor Level diff.	0	0	0	0	0	0	0
Insertion Loss	0	0	0	0	0	0	0
Area (+10LogA), 1 m ²	0.8	0.8	0.8	0.8	0.8	0.8	0.8
Element sound level contribution	18	17	33	20	15	13	-8
Receiver							
Room volume (-10LogV), 83.05 m ³	-8.2	-8.2	-8.2	-8.2	-8.2	-8.2	-8.2
Reverberation time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5
RT (+10LogT)	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0
Equation Constant	11	11	11	11	11	11	11
Room sound level	19	18	33	21	16	14	-8
Level difference							
D2m,nT	36.4	37.8	35.5	48.0	54.1	51.5	52.6
							LpAinc - LpArev,T0
							43.7

** Element descriptions:

#1: Wall - solid 9Inch

Wall (Single):

- Panel 1: 1 x 225 mm Brick
- Details: Panel Size 2.7 m x 4.0 m, Partition surface mass = 360 kg/m²

#2: Window 6/12/6

Glazing (Double):

- Pane 1: 1 x 6 mm Glass
- Cavity: 12 mm
- Pane 2: 1 x 6 mm Glass
- Details: Energy-based model, Panel Size 1.3 m x 1.5 m, Partition surface mass = 29.2 kg/m², Mass-air-mass resonant frequency = 200 Hz

Appendix C – Proposed Dividing Structure Specifications

Party Wall

Sound Insulation Prediction (v10.0.6)

Program copyright Marshall Day Acoustics 2023 | Margin of error is generally within $R_w \pm 3$ dB

Date: 24/02/2025

Job Name:



R_w 56 dB

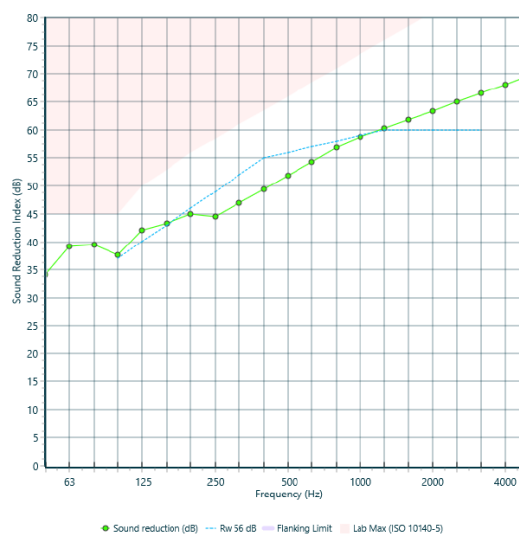
C -1 dB

Ctr -5 dB

System description

Panel 1 1 x 225 mm Brick
Details Panel Size 2.7 m x 4.0 m, Partition surface mass = 360 kg/m²

freq. (Hz)	R (dB)	Roct (dB)
50	34	
63	39	37
80	39	
100	38	
125	42	40
160	43	
200	45	
250	44	45
315	47	
400	49	
500	52	51
630	54	
800	57	
1000	59	58
1250	60	
1600	62	
2000	63	63
2500	65	
3150	67	
4000	68	68
5000	70	



- Key No. 2594 | Initials:info | File Name:insul



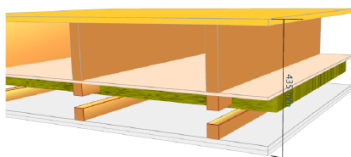
Ceiling

Sound Insulation Prediction (v10.0.6)

Program copyright Marshall Day Acoustics 2023 | Margin of error is generally within $R_w \pm 3$ dB

Date: 16/02/2025

Job Name:



R_w 67 dB

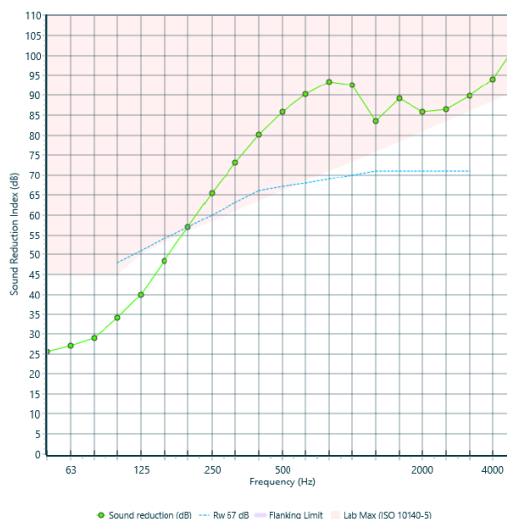
C -6 dB

Ctr -14 dB

System description

Panel 1	1 x 20 mm Flooring Particle Board
Frame	Timber stud (225 mm x 45 mm), Stud spacing 600 mm, Cavity Width 225 mm + (Empty cavity)
Panel 2	1 x 10 mm Plasterboard
Frame	Separate Joists (50 mm x 45 mm), Stud spacing 600 mm, Cavity Width 150 mm + 60 mm Fibreglass (10kg/m3) 60mm
Panel 3	2 x 15 mm Gyproc SoundBloc 15mm
Details	Panel Size 2.7 m x 4.0 m, Partition surface mass = 47.1 kg/m ² , Mass-air-mass resonant frequency = 32 Hz, 80 Hz

freq. (Hz)	R (dB)	Roct (dB)
50	26	
63	27	27
80	29	
100	34	
125	40	38
160	48	
200	57	
250	65	61
315	73	
400	80	
500	86	84
630	90	
800	93	
1000	93	87
1250	84	
1600	89	
2000	86	87
2500	86	
3150	90	
4000	94	93
5000	103	



- Key No. 2594 | Initials:info | File Name:insul

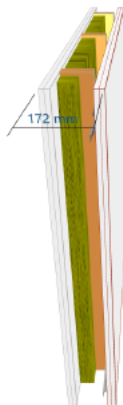
Internal Wall

Sound Insulation Prediction (v10.0.6)

Program copyright Marshall Day Acoustics 2023 | Margin of error is generally within $R_w \pm 3$ dB

Date: 19/02/2025

Job Name:



R_w 58 dB

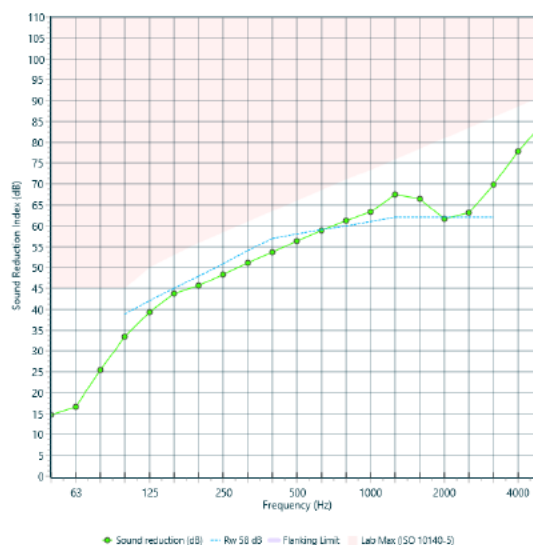
C -2 dB

Ctr -7 dB

System description

Panel 1 2 x 15 mm Gyproc SoundBloc 15mm
Frame Timber stud + Resilient rail/bar (100 mm x 45 mm), Stud spacing 600 mm, Cavity Width 112 mm + 60 mm Fibreglass (10kg/m³) 60mm
Panel 2 2 x 15 mm Gyproc SoundBloc 15mm
Details Panel Size 2.7 m x 4.0 m, Partition surface mass = 51 kg/m², Mass-air-mass resonant frequency = 49 Hz

freq. (Hz)	R (dB)	Roct (dB)
50	15	
63	17	17
80	26	
100	33	
125	39	37
160	44	
200	46	
250	48	48
315	51	
400	54	
500	56	56
630	59	
800	61	
1000	63	63
1250	68	
1600	66	
2000	62	63
2500	63	
3150	70	
4000	78	74
5000	84	



● Sound reduction (dB) --- R_w 58 dB --- Flanking Limit --- Lab Max (ISO 10140-5)

- Key No. 2594 | Initials:info | File Name:insul



Appendix D – Report Author Details

This report has been produced by Neil Martin, BSc (Hons), PGDip, CEnvH MCIEH, MIOA.

Neil is the principal acoustic consultant at Martin Environmental Solutions Ltd, a consultancy company specialising in Environmental Health disciplines including environmental noise assessment and control. He holds a Bachelor's degree in Environmental Health and Diploma in Acoustics. He is a Chartered Member of the Chartered Institute of Environmental Health and a Full member of the Institute of Acoustics.

Neil has over 20 years' experience working within a Local Authority Environmental Health setting, principally in the Environmental Protection and Public Health areas and has been working as an acoustic consultant since 2011.

Since its formation, Martin Environmental Solutions has advised and assisted many groups including residents, developers and local authorities about the problems of noise and vibration in the environment and the possible solutions. Neil also acts as an expert witness in the area of acoustics.