



Acoustic Survey and Assessment for Proposed first floor extension to create a residential apartment at 112 Oswald Street, Rochdale, OL16 2JZ.

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 a proposed first floor extension to create a residential unit at 112 Oswald Street, Rochdale, OL16 2JZ.

Site Location and Context

- 1.2. The development site is situated to the southern end of Oswald Street near to the junction with Entwisle Road. To the north of the site is Oswald Street, with a watercourse on the far side of the road and existing housing beyond. To the northwest the terrace properties continue, south to the rear a parking area and to the east open land before Entwisle Road.
- 1.3. An aerial Photograph is enclosed in Figure 1, together with a proposed layout drawing in Figure 2.
- 1.4. 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 2023, 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. 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.

2.13. 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.

2.14. 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

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



2.16. 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 will consist of a first-floor extension to the existing ground floor retail unit, a new staircase access will be created onto Oswald Street. The development will be constructed using a cavity wall and pitched roof.
- 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 13th-15th October 2024.
- 3.4 A Cirrus Optimus Green sound level meter was utilised for the monitoring. The meter was placed over 1m from the façade of the existing building overlooking Oswald Street.
- 3.5 The meter was 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.

Start Time	End Time	Duration	L _{Aeq}	L _{A90}	L _{AMax}
13/10/2024 19:00	13/10/2024 23:00	03:59:58	62.6	45.9	98.5
13/10/2024 23:00	14/10/2024 07:00	08:00:00	57.1	39.6	84.8
14/10/2024 07:00	14/10/2024 23:00	16:00:00	64.3	51.7	96.1
14/10/2024 23:00	15/10/2024 07:00	08:00:00	56.1	39.4	87.4
15/10/2024 07:00	15/10/2024 10:00	03:00:01	64.1	53.1	84.2

- 3.8 Background sound levels were dominated by passing traffic on the main road with night-time maximum sound levels regularly exceeded at identified at 76.0dB(A).
- 3.9 Given a 15dB attenuation¹ for an open window the sound levels to be experienced by the future occupants are above those identified within the guidance documents detailed in section 2 of the report. Therefore, further mitigation measures are required.

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



- 3.10 A standard 6/12/6 double glazing unit will, when closed, provide a sound reduction, $R_w(C;C_{tr})$, of 33(-1;-3). When taking in the full façade of the property, see Appendix B, this will be adequate to protect the future occupants from the prevailing environmental sound levels.
- 3.11 It is therefore recommended that a Standard double-glazing unit be installed to all rooms.
- 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.
- 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.



Internal transfer of Sound

- 3.16 It is also important to ensure that sound transfer between the proposed property and the adjacent uses is minimised to avoid any adverse impact and to comply with the Building Regulations.
- 3.17 The adjacent property is an existing dwelling with a cavity brick wall, plastered internally. This will provide a reduction of 55dB R_w , see Appendix C. Additional wall finishing to the new property will add to this level of insulation. This will therefore comply with the building regulation requirements and sound levels of up to 85dB(A) can be produced, equivalent to a busy manufacturing site, while ensuring the recommended night-time level of 30dB(A) is not exceeded.
- 3.18 On the ground floor is an existing retail unit, currently owned and operated by the applicant. The shop sells clothing and sound levels to generated and not considered to be exceptional high. The site only operates during the daytime. Between the ground and first floor a specification has been identified to ensure a similar level of attenuation to the separating wall is achieved, see Appendix C.
- 3.19 A specification has also been produced for the wall around the entrance hallway.



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 In addition, a consideration of party structures has been undertaken and a specification for the new separating floor/ceiling has been identified to ensure no adverse impact is experienced.
- 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



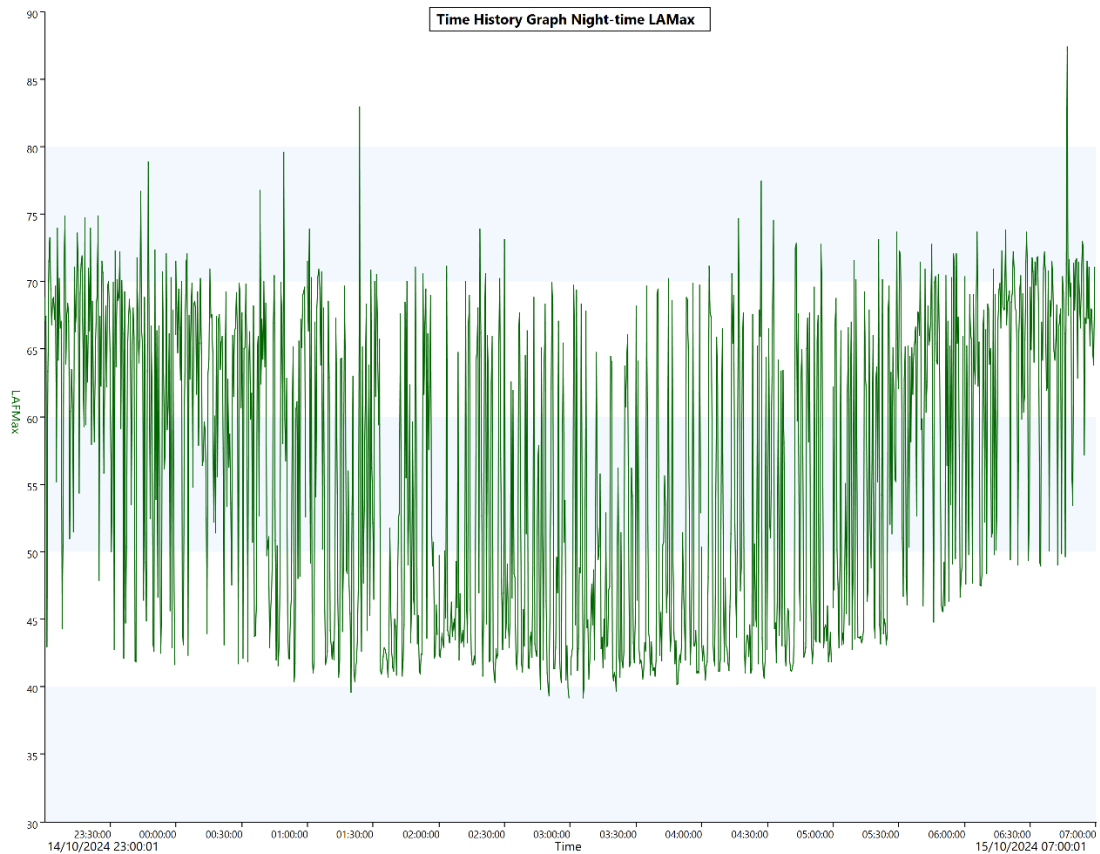
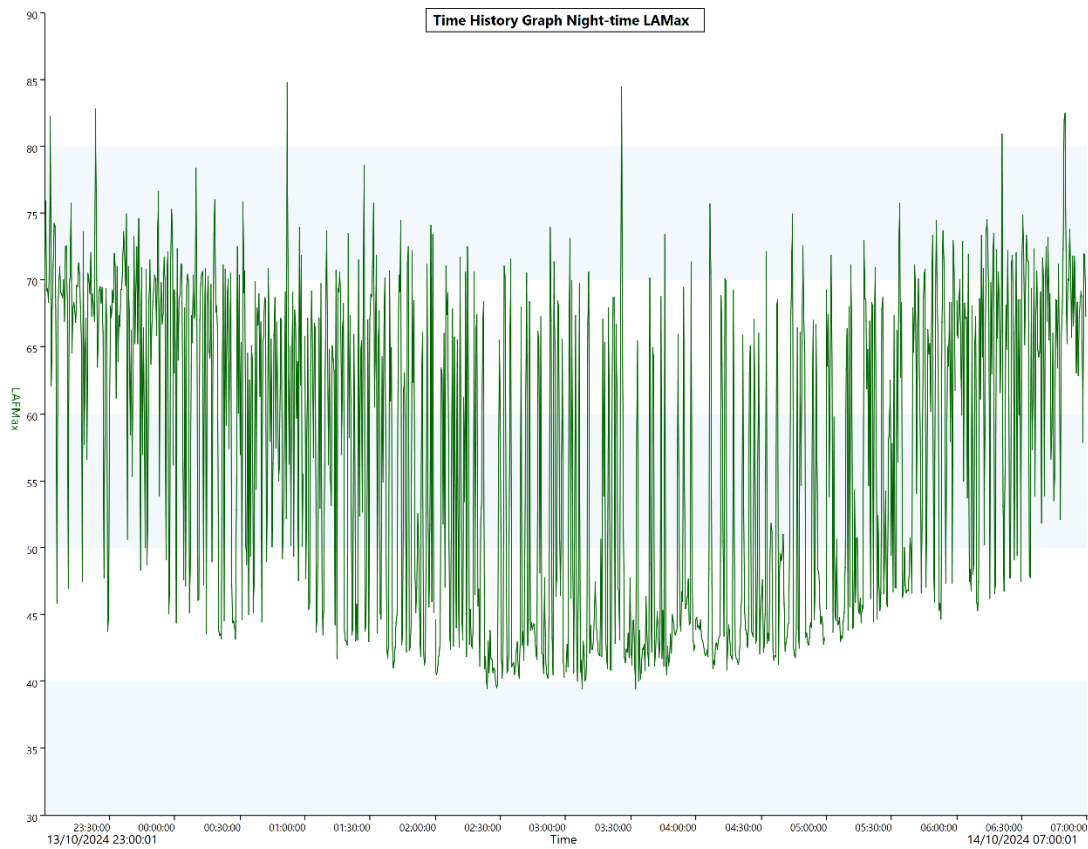
Figure 2 – Proposed Layout Plan

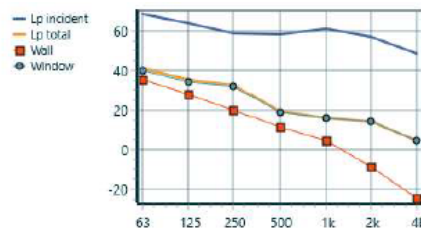




Appendix A – Full Monitoring Results

Time	L _{Aeq} (dB)	L _{AMax} (dB)	L _{A90} (dB)
13/10/2024 19:00	62.7	79.1	49.6
13/10/2024 20:00	64.5	98.5	48.4
13/10/2024 21:00	61.5	80.6	44.9
13/10/2024 22:00	60.7	79.4	43.9
13/10/2024 23:00	60.6	82.8	43.1
14/10/2024 00:00	57.8	84.8	41.8
14/10/2024 01:00	55.5	78.6	39.8
14/10/2024 02:00	52.6	73.9	38.5
14/10/2024 03:00	53.4	84.4	38.3
14/10/2024 04:00	51.5	75.7	39.7
14/10/2024 05:00	55.4	75.8	42.7
14/10/2024 06:00	60.3	82.5	45.3
14/10/2024 07:00	63.1	83.7	50.0
14/10/2024 08:00	65.0	78.7	55.2
14/10/2024 09:00	64.2	78.3	54.2
14/10/2024 10:00	64.0	88.7	51.0
14/10/2024 11:00	65.1	92.5	52.9
14/10/2024 12:00	64.6	91.5	54.3
14/10/2024 13:00	66.5	96.1	55.4
14/10/2024 14:00	64.9	87.6	55.2
14/10/2024 15:00	65.6	90.3	57.4
14/10/2024 16:00	65.3	88.9	56.7
14/10/2024 17:00	65.0	94.7	56.4
14/10/2024 18:00	64.5	83.9	54.7
14/10/2024 19:00	62.9	77.5	52.3
14/10/2024 20:00	63.1	88.2	48.3
14/10/2024 21:00	61.8	82.8	44.9
14/10/2024 22:00	59.9	77.7	42.7
14/10/2024 23:00	58.1	78.9	40.3
15/10/2024 00:00	56.5	79.6	39.9
15/10/2024 01:00	54.5	82.9	38.9
15/10/2024 02:00	51.9	73.9	38.8
15/10/2024 03:00	50.5	70.2	38.7
15/10/2024 04:00	52.8	77.4	39.5
15/10/2024 05:00	55.1	73.7	41.5
15/10/2024 06:00	60.6	87.4	46.8
15/10/2024 07:00	63.0	76.9	49.8
15/10/2024 08:00	64.7	78.5	56.1
15/10/2024 09:00	64.4	84.2	54.6





** Element descriptions:

#1: Wall
#2: Window

Night-time

Outdoor To Indoor Sound Transmission (v10.0.5)

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Margin of error is generally within ± 3 dB

- Key No. 2594

Job Name:

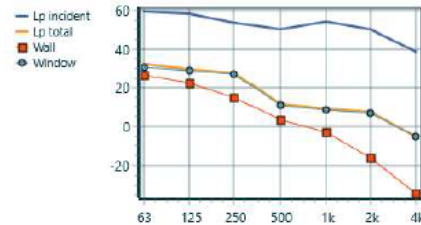
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Date:18/10/2024

File Name:

Comment:

Initials:info



Octave Band Centre Frequency (Hz)								
Source	63	125	250	500	1k	2k	4k	Overall dBA
Incident sound level (freefield)	59.4	58.3	53.9	50.4	54.4	49.9	38.5	57
Path								
Element 1, STL	-37	-40	-43	-51	-61	-70	-77	10
Facade Shape factor Level diff.	0	0	0	0	0	0	0	
Insertion Loss	0	0	0	0	0	0	0	
Area(+10LogA) [14 m²]	11	11	11	11	11	11	11	
Element sound level contribution	26	22	15	3	-3	-16	-35	
Element 2, STL	-24	-25	-22	-35	-41	-38	-39	21
Facade Shape factor Level diff.	0	0	0	0	0	0	0	
Insertion Loss	0	0	0	0	0	0	0	
Area(+10LogA) [1.9 m²]	3	3	3	3	3	3	3	
Element sound level contribution	31	29	27	11	9	7	-5	
Receiver								
Room volume(-10LogV) [34 m³]	-15	-15	-15	-15	-15	-15	-15	21
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	32	30	27	11	9	7	-5	
Level difference								
D2m,nT	30	32	30	42	49	46	47	LpAinc - LpArev,T0
** Element descriptions: #1: Wall #2: Window								

Night-time LAMax

Outdoor To Indoor Sound Transmission (v10.0.5)

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Margin of error is generally within ± 3 dB

- Key No. 2594

Job Name:

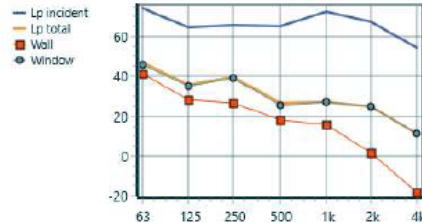
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Date: 18/10/2024

File Name:

Comment:



Octave Band Centre Frequency (Hz)								
Source	63	125	250	500	1k	2k	4k	Overall dBA
Incident sound level (freefield)	74.4	64.6	65.9	65.3	72.7	67.8	54.7	75
Path								
Element 1, STL	-37	-40	-43	-51	-61	-70	-77	23
Facade Shape factor Level diff.	0	0	0	0	0	0	0	
Insertion Loss	0	0	0	0	0	0	0	
Area(+10LogA) [14 m²]	11	11	11	11	11	11	11	
Element sound level contribution	41	29	27	18	16	2	-18	
Element 2, STL	-24	-25	-22	-35	-41	-38	-39	34
Facade Shape factor Level diff.	0	0	0	0	0	0	0	
Insertion Loss	0	0	0	0	0	0	0	
Area(+10LogA) [1.9 m²]	3	3	3	3	3	3	3	
Element sound level contribution	46	35	39	26	27	25	11	
Receiver								
Room volume(-10LogV) [34 m³]	-15	-15	-15	-15	-15	-15	-15	34
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	47	36	39	26	27	25	11	
Level difference								
D2m,nT	30	32	30	42	49	46	47	LpAinc - LpArev,T0 40
** Element descriptions: #1: Wall #2: Window								

Rear Living/Kitchen

Daytime

Outdoor To Indoor Sound Transmission (v10.0.5)

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Margin of error is generally within ± 3 dB

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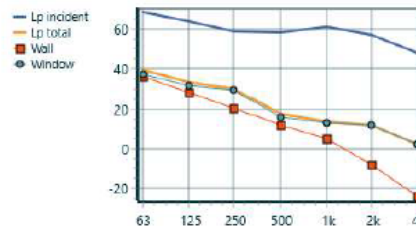
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Initials: info



Octave Band Centre Frequency (Hz)							
Source	63	125	250	500	1k	2k	4k
Incident sound level (freefield)	68.8	64.2	58.9	58.6	61.5	57.3	48.5
Overall dBA							
64							
Path							
Element 1, STL	-37	-40	-43	-51	-61	-70	-77
Facade Shape factor Level diff.	0	0	0	0	0	0	0
Insertion Loss	0	0	0	0	0	0	0
Area(+10LogA) [23 m²]	14	14	14	14	14	14	14
Element sound level contribution	36	28	20	12	5	-8	-24
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) [1.5 m²]	2	2	2	2	2	2	2
Element sound level contribution	37	32	29	16	13	12	2
Receiver							
Room volume(-10LogV) [54 m³]	-17	-17	-17	-17	-17	-17	-17
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	40	33	30	17	13	12	2
Level difference							
D2m,nT	32	34	32	44	51	49	50
LpAinc - LpArev,T0							
40							
** Element descriptions:							
#1: Wall							
#2: Window							

Night-time

Outdoor To Indoor Sound Transmission (v10.0.5)

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Margin of error is generally within ± 3 dB

- Key No. 2594

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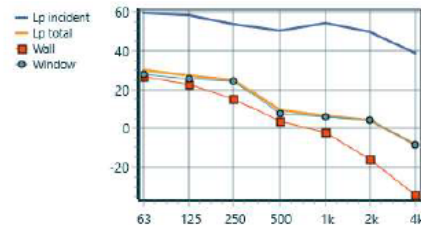
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Octave Band Centre Frequency (Hz)							
Source	63	125	250	500	1k	2k	4k
Incident sound level (freefield)	59.4	58.3	53.9	50.4	54.4	49.9	38.5
Path							
Element 1, STL	-37	-40	-43	-51	-61	-70	-77
Facade Shape factor Level diff.	0	0	0	0	0	0	0
Insertion Loss	0	0	0	0	0	0	0
Area(+10LogA) [23 m²]	14	14	14	14	14	14	14
Element sound level contribution	27	23	15	4	-2	-16	-34
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) [1.5 m²]	2	2	2	2	2	2	2
Element sound level contribution	28	26	24	8	6	4	-8
Receiver							
Room volume(-10LogV) [54 m³]	-17	-17	-17	-17	-17	-17	-17
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	30	27	25	9	6	4	-8
Level difference							
D2m,nT	32	34	32	44	51	49	50
LpAinc - LpARev,T0							39
** Element descriptions: #1: Wall #2: Window							

Night-time LAMax

Outdoor To Indoor Sound Transmission (v10.0.5)

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Margin of error is generally within ± 3 dB

- Key No. 2594

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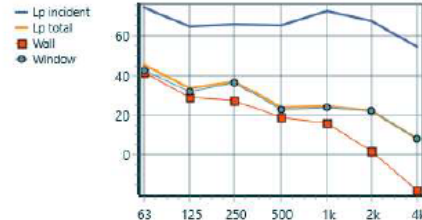
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Date: 18/10/2024

File Name:

Comment:

Initials: info



Octave Band Centre Frequency (Hz)								
Source	63	125	250	500	1k	2k	4k	Overall dBA
Incident sound level (freefield)	74.4	64.6	65.9	65.3	72.7	67.8	54.7	75
Path								
Element 1 , STL	-37	-40	-43	-51	-61	-70	-77	23
Facade Shape factor Level diff.	0	0	0	0	0	0	0	
Insertion Loss	0	0	0	0	0	0	0	
Area(+10LogA) [23 m²]	14	14	14	14	14	14	14	
Element sound level contribution	42	29	27	19	16	2	-18	
Element 2 , STL	-24	-25	-22	-35	-41	-38	-39	31
Facade Shape factor Level diff.	0	0	0	0	0	0	0	
Insertion Loss	0	0	0	0	0	0	0	
Area(+10LogA) [1.5 m²]	2	2	2	2	2	2	2	
Element sound level contribution	43	32	36	23	24	22	8	
Receiver								
Room volume(-10LogV) [54 m³]	-17	-17	-17	-17	-17	-17	-17	32
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	45	34	37	24	25	22	8	
Level difference								
D2m,nT	32	34	32	44	51	49	50	LpAinc - LpArev,T0
** Element descriptions: #1: Wall #2: Window								

Appendix C – Attenuation from Building Elements

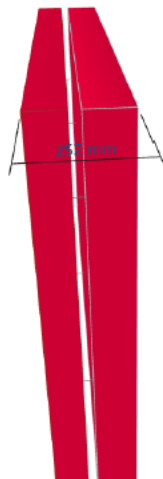
Existing party wall

Sound Insulation Prediction (v10.0.5)

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

Date: 18/10/2024

Job Name:



R_w 55 dB

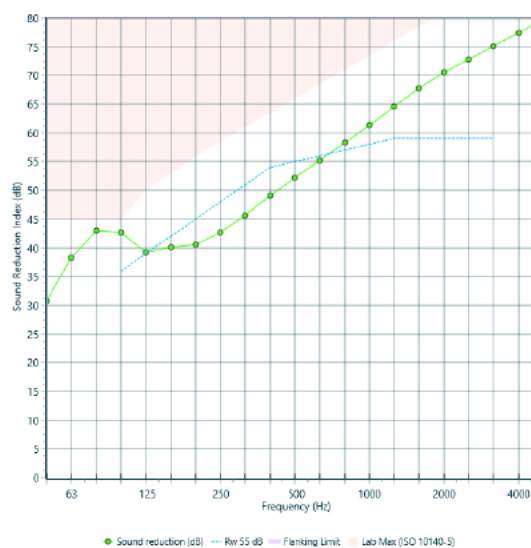
C -1 dB

Ctr -5 dB

System description

Panel 1 1 x 100 mm Brick
Frame Type A Wall Tie (UK) (30 mm) + (Empty cavity)
Panel 2 1 x 122 mm Plastered Brick
Details Panel Size 2.7 m x 4.0 m, Partition surface mass = 355 kg/m², Mass-air-mass resonant frequency = 37 Hz

freq. (Hz)	R (dB)	Roct (dB)
50	31	
63	38	35
80	43	
100	43	
125	39	40
160	40	
200	41	
250	43	42
315	46	
400	49	
500	52	51
630	55	
800	58	
1000	61	61
1250	65	
1600	68	
2000	70	70
2500	73	
3150	75	
4000	77	77
5000	80	



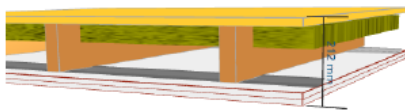
Proposed Ceiling/Floor

Sound Insulation Prediction (v10.0.5)

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

Date: 18/10/2024

Job Name:



R_w 57 dB

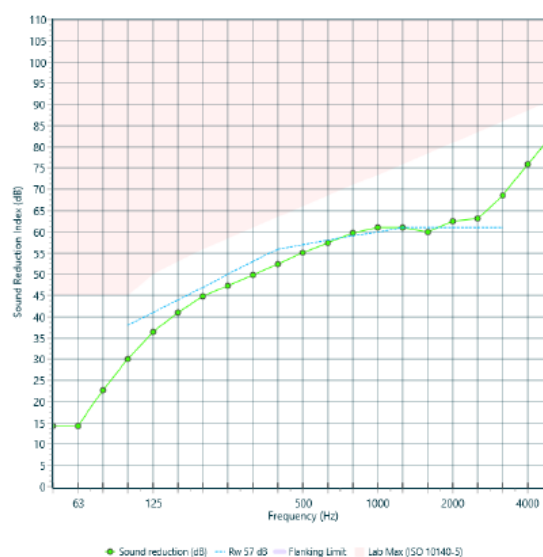
C -3 dB

Ctr -9 dB

System description

Panel 1 1 x 20 mm Flooring Particle Board
Frame Solid Joist with resilient rail (144 mm x 47 mm), Stud spacing 600 mm, Cavity Width 162 mm + 60 mm Fibreglass (10kg/m³) 60mm
Panel 2 2 x 15 mm Gyproc Fireline 15mm
Details Panel Size 2.7 m x 4.0 m, Partition surface mass = 38.2 kg/m², Mass-air-mass resonant frequency = 49 Hz

freq. (Hz)	R (dB)	Roct (dB)
50	14	
63	14	16
80	23	
100	30	
125	36	34
160	41	
200	45	
250	47	47
315	50	
400	52	
500	55	55
630	58	
800	60	
1000	61	61
1250	61	
1600	60	
2000	62	62
2500	63	
3150	68	
4000	76	72
5000	83	



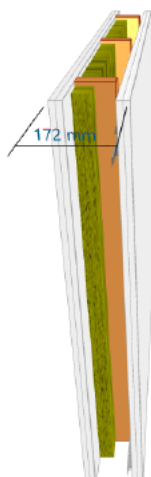
Proposed Hallway Wall

Sound Insulation Prediction (v10.0.5)

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

Date: 18/10/2024

Job Name:



R_w 58 dB

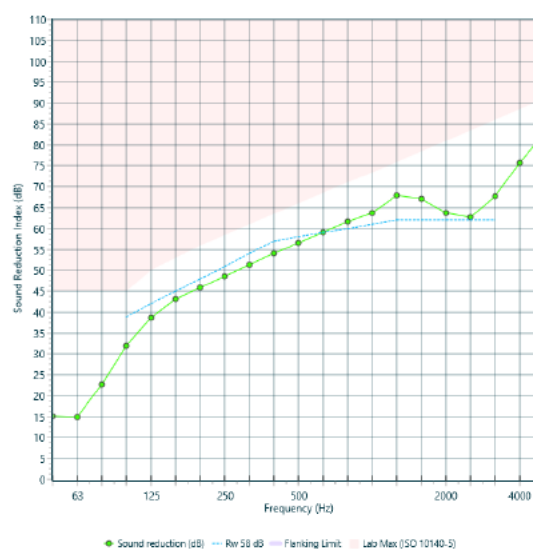
C -2 dB

Ctr -8 dB

System description

Panel 1 2 x 15 mm Gyproc SoundBloc 15mm
Frame Timber stud + Resilient rail/bar (100 mm x 47 mm), Stud spacing 600 mm, Cavity Width 112 mm + 50 mm Fibreglass (10kg/m³) 60mm
Panel 2 2 x 15 mm Gyproc Fireline 15mm
Details Panel Size 2.7 m x 4.0 m, Partition surface mass = 49.1 kg/m², Mass-air-mass resonant frequency = 50 Hz

freq. (Hz)	R (dB)	Roct (dB)
50	15	
63	15	16
80	23	
100	32	
125	39	36
160	43	
200	46	
250	49	48
315	51	
400	54	
500	57	56
630	59	
800	62	
1000	64	64
1250	68	
1600	67	
2000	64	64
2500	63	
3150	68	
4000	76	72
5000	83	



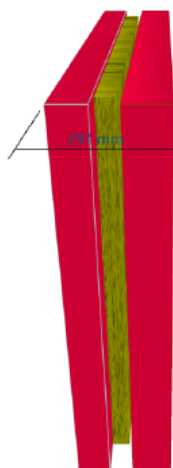
New External Wall

Sound Insulation Prediction (v10.0.5)

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

Date: 18/10/2024

Job Name:



R_w 55 dB

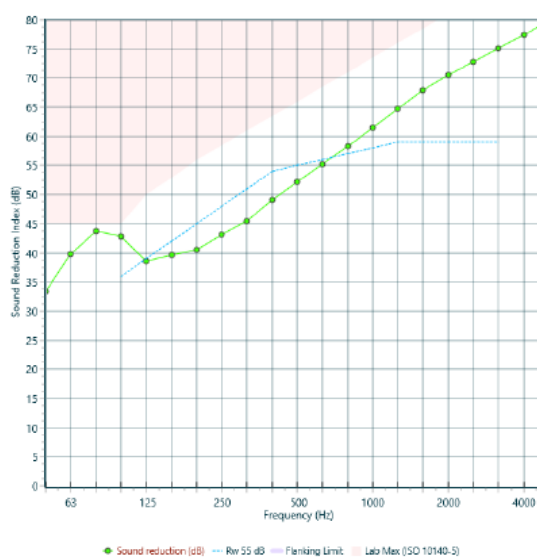
C -1 dB

Ctr -5 dB

System description

Panel 1 1 x 100 mm Brick
Frame Type A Wall Tie (UK) (75 mm) + 60 mm Fibreglass (10kg/m³) 60mm
Panel 2 1 x 122 mm Plastered Brick
Details Panel Size 2.7 m x 4.0 m, Partition surface mass = 356 kg/m², Mass-air-mass resonant frequency = 22 Hz

freq. (Hz)	R (dB)	Roct (dB)
50	33	
63	40	37
80	44	
100	43	
125	39	40
160	40	
200	40	
250	43	43
315	45	
400	49	
500	52	51
630	55	
800	58	
1000	61	61
1250	65	
1600	68	
2000	70	70
2500	73	
3150	75	
4000	77	77
5000	80	





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.