



Acoustic Survey and Assessment for Proposed Change of Use from storage to residential apartments at 252 Yorkshire Street, Rochdale, OL16 2DP.

Prepared for:

Building Design Services,
418 Bury Road,
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OL11 5EU.

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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 change of use of the upper floors from storage to residential apartments at 252 Yorkshire Street, Rochdale, OL16 2DP.

Site Location and Context

- 1.2. The development site is situated to the east of Yorkshire Street and corner of East Street. Consisting of a three-storey end terrace, the ground floor is retail, currently a barber, while the development will see the conversion of the first and second floors to residential. The adjoining neighbouring property to the south is also retail to the ground floor and residential to the upper floors. This is mirror on the opposite side of both roads with a disused plot to the rear of the site.
- 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 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. 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 consists of a change of use from storage to residential accommodation. No external building works or plant are proposed.
- 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 30th June to 2nd July 2025.
- 3.4 A Cirrus Optimus Green sound level meter was utilised for the monitoring. The meter was placed over 1m from the first-floor façade of the building overlooking the Yorkshire Street to the front.
- 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 warm, 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}
02/07/2025 15:00	02/07/2025 23:00	07:59:58	72.9	60.7	109.9
02/07/2025 23:00	03/07/2025 07:00	08:00:00	69.6	41.7	108.4
03/07/2025 07:00	03/07/2025 23:00	16:00:00	74.0	63.0	112.0
03/07/2025 23:00	04/07/2025 07:00	08:00:00	69.0	40.6	102.7
04/07/2025 07:00	04/07/2025 11:00	04:00:00	74.3	63.2	110.4

- 3.8 Background sound levels were dominated by passing traffic along Yorkshire Street, with night-time maximum sound levels regularly exceeded at identified at 85.8dB(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 35(-2;-5). Therefore, adequate to protect the future occupants from the prevailing average day and night-time sound levels for the second floor and given the distance attenuation to the kitchen diners of both floors. The internal sound levels will be 42.7dB(A) on the first floor and 39.1dB(A) on the second.
- 3.11 A more detailed calculation has been undertaken considering the full facade of the property including the brickwork and glazing. Appendix B details the results of these calculation, based on the standard double-glazed window units. For the first-floor front bedroom the levels are very slightly in excess of the average guideline values at 35.3dB(A) and 30.4dB(A). Due primarily to the greater glazing area.
- 3.12 It is therefore recommended that a slightly enhanced glazing specification is utilised for this room. Given the slight improvement required a number of options are available including secondary glazing, triple glazing or acoustic glazing. Any specification greater than the standard 6/12/6 double-glazing for these two windows will be sufficient to ensure internal sound levels are below those recommended above and no adverse impact will be experienced by the future occupants.
- 3.13 For both the first and second floor apartment rooms, the rear kitchen/living room having only small side and greater distance attenuation from the roadside and not in for sleeping.
- 3.14 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.
- 3.15 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.

- 3.16 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.
- 3.17 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 background ventilation and the removal of heat from the building and to limit solar gain.
- 3.18 The only widows to the rear of the site are into the non-habitable bathrooms. As such no adverse impact is to be expected from the rear of the site.

Internal Transfer of Sound

- 3.19 It is also important to ensure that the internal transfer of sound between units of accommodation and from the ground floor do not result in any adverse impact.
- 3.20 The ground floor has recently been renovated and is currently utilised as a barber, as part of this work the ceiling was improved with a dropped stud frame and fire board to achieve the required fire protection. The opportunity was also taken in add insulation into the is space to improve the acoustic attenuation.
- 3.21 The current separating ceiling between the ground and first floor will provide a reduction of 50dB(A) R_w . It is however recommended that this structure is improved further with the addition of a particle floor boarding, 18mm, increasing the level of attenuation to ~62dB(A) R_w . Thus, ensuring no adverse impact is experienced by the future occupants of the flat, see Appendix C.
- 3.22 The separating ceiling between the first and second floor should also be improved, see details in Appendix C to provide 57dB(A) R_w attenuation, again exceeding the requirements of the Building Regulations and ensuring to adverse impact is experienced.
- 3.23 Finally, the walls between the staircases and the flats need to ensure minimal sound transfer from the staircase and a suitable specification has been included providing 58dB(A) R_w , above the Building Regulations requirements.



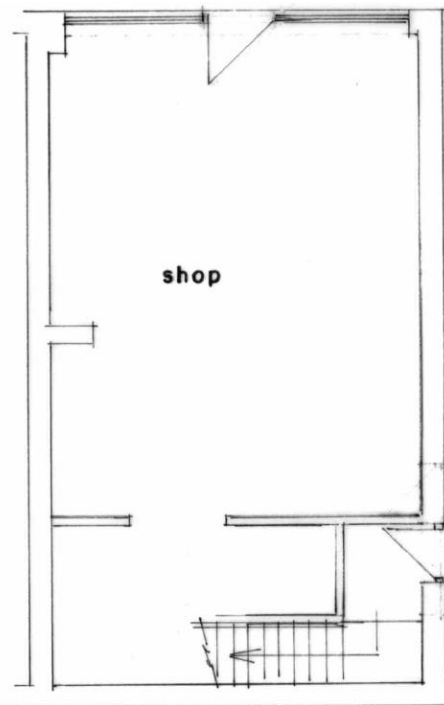
4 Conclusion

- 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 for the second-floor apartment and kitchen/diner of the first-floor. Slightly enhanced glazing is required for the first-floor bedroom.
- 4.3 A consideration of separating structures between the units of accommodation and the ground floor retail unit has also been undertaken with a suggested specification provided; alternative are available to achieve the same of greater level of attenuation.
- 4.4 The inclusion of the above mitigation measures to all habitable rooms will ensure that the internal 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.

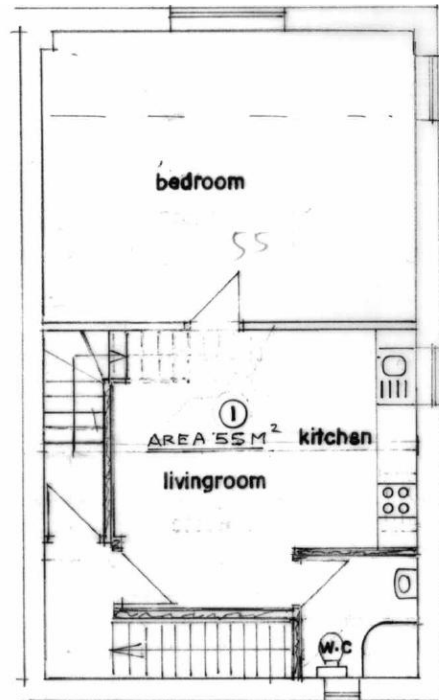
Figure 1 – Aerial Photograph



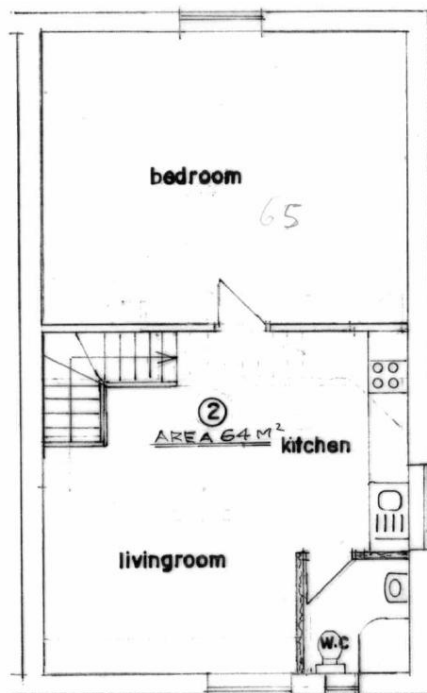
Figure 2 – Proposed Layout Plan



GROUND FLOOR PLAN
(PROPOSED)



FIRST FLOOR PLAN
(PROPOSED)



SECOND FLOOR PLAN
(PROPOSED)

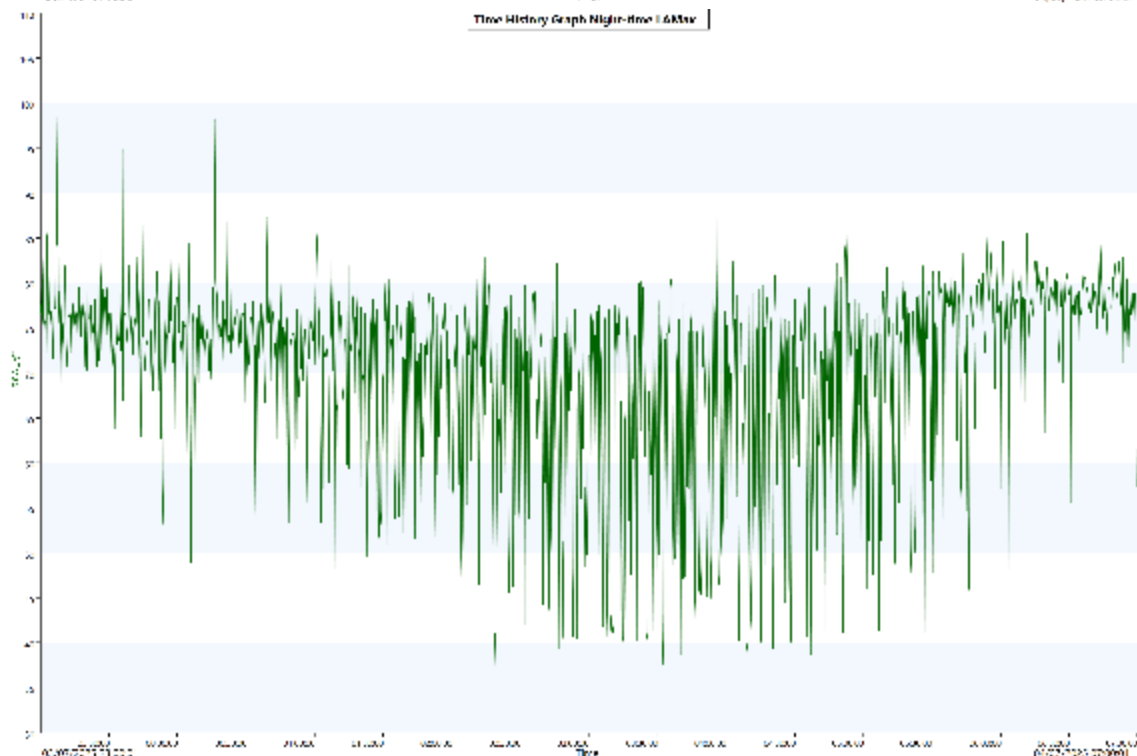
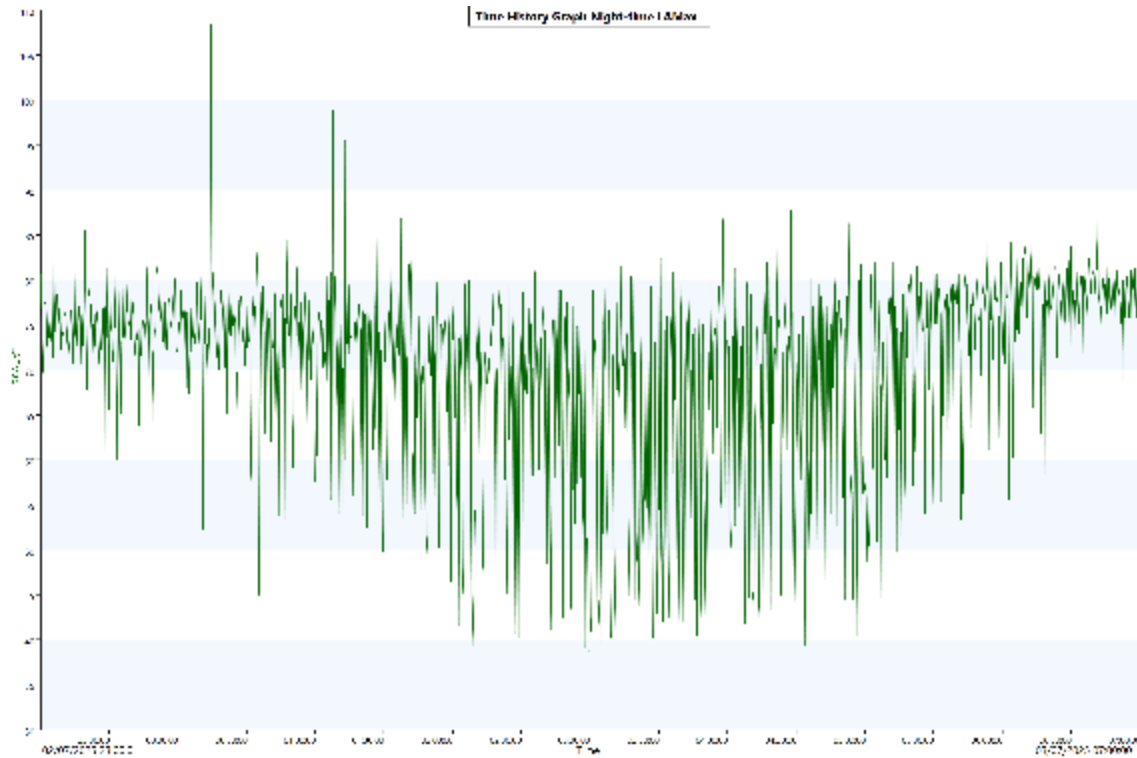


Appendix A – Full Monitoring Results

Time	L _{Aeq} (dB)	L _{AMax} (dB)	L _{A90} (dB)
02/07/2025 15:00	71.4	102.8	60.3
02/07/2025 16:00	69.4	98.9	59.6
02/07/2025 17:00	68.0	92.0	60.1
02/07/2025 18:00	77.0	107.4	61.8
02/07/2025 19:00	75.0	109.9	62.8
02/07/2025 20:00	72.5	100.2	63.3
02/07/2025 21:00	71.1	94.1	60.2
02/07/2025 22:00	72.3	102.8	57.9
02/07/2025 23:00	70.0	85.4	55.4
03/07/2025 00:00	72.6	108.4	50.5
03/07/2025 01:00	67.8	99.0	44.3
03/07/2025 02:00	64.4	80.9	38.1
03/07/2025 03:00	64.6	86.7	38.0
03/07/2025 04:00	66.1	87.7	39.3
03/07/2025 05:00	69.3	85.2	45.0
03/07/2025 06:00	73.1	87.3	57.1
03/07/2025 07:00	73.5	86.3	65.1
03/07/2025 08:00	72.6	100.3	62.6
03/07/2025 09:00	71.2	84.5	62.8
03/07/2025 10:00	70.7	91.1	63.3
03/07/2025 11:00	77.4	109.6	64.1
03/07/2025 12:00	77.9	112.0	63.4
03/07/2025 13:00	72.3	101.4	63.7
03/07/2025 14:00	72.8	104.8	63.8
03/07/2025 15:00	69.5	95.2	61.2
03/07/2025 16:00	70.5	95.7	63.1
03/07/2025 17:00	76.4	106.0	63.5
03/07/2025 18:00	75.0	105.6	62.7
03/07/2025 19:00	74.8	105.9	64.2
03/07/2025 20:00	71.0	94.6	63.0
03/07/2025 21:00	75.3	108.5	61.1
03/07/2025 22:00	71.6	95.4	60.6
03/07/2025 23:00	71.3	102.7	55.1
04/07/2025 00:00	69.5	98.1	48.3
04/07/2025 01:00	66.6	85.7	44.4
04/07/2025 02:00	65.1	85.7	37.8
04/07/2025 03:00	64.2	87.4	37.0
04/07/2025 04:00	65.4	85.2	37.5
04/07/2025 05:00	69.2	85.9	42.5
04/07/2025 06:00	72.7	85.5	56.6
04/07/2025 07:00	76.9	108.7	64.1



04/07/2025 08:00	75.2	110.4	62.4
04/07/2025 09:00	71.3	91.1	62.8
04/07/2025 10:00	70.9	88.3	63.6



Appendix B – Sound Break-in Calculations

First Floor

Daytime

Outdoor To Indoor Sound Transmission (v10.0.6)

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Margin of error is generally within ± 3 dB

- Key No. 2594

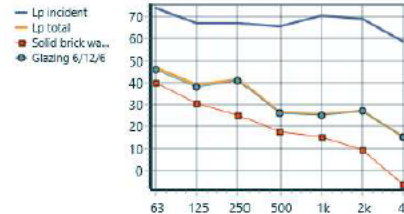
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Octave Band Centre Frequency (Hz)								
Source	63	125	250	500	1k	2k	4k	Overall dBA
Incident sound level (freefield)	74.0	67.3	67.3	65.5	70.4	69.2	58.5	74.1
Path								
Element 1 , STL	-37	-40	-45	-51	-58	-63	-68	22.3
Facade Shape factor Level diff.	0	0	0	0	0	0	0	
Insertion Loss	0	0	0	0	0	0	0	
Area (+10LogA), 25 m²	13.9	13.9	13.9	13.9	13.9	13.9	13.9	
Element sound level contribution	40	30	25	18	15	9	-6	
Element 2 , STL	-24	-25	-22	-35	-41	-38	-39	35.1
Facade Shape factor Level diff.	0	0	0	0	0	0	0	
Insertion Loss	0	0	0	0	0	0	0	
Area (+10LogA), 5 m²	6.7	6.7	6.7	6.7	6.7	6.7	6.7	
Element sound level contribution	46	38	41	26	25	27	15	
Receiver								
Room volume (+10LogV), 76.62 m³	-7.8	-7.8	-7.8	-7.8	-7.8	-7.8	-7.8	35.3
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	47	39	41	27	26	27	15	
Level difference								
D2m,nT	30.4	31.7	29.3	41.9	48.0	45.3	46.4	LpAinc - LpArev,T0
	30.4	31.7	29.3	41.9	48.0	45.3	46.4	38.7

** Element descriptions:

#1: Solid brick wall

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: Glazing 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

Outdoor To Indoor Sound Transmission (v10.0.6)

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Margin of error is generally within ± 3 dB

- Key No. 2594

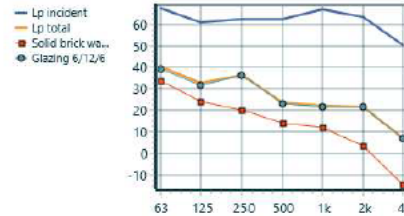
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Date: 07/07/2025

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Octave Band Centre Frequency (Hz)								
Source	63	125	250	500	1k	2k	4k	Overall dBA
Incident sound level (freefield)	67.5	61.1	62.2	62.2	66.9	63.6	59.2	69.6
Path								
Element 1, STL	-37	-40	-45	-51	-58	-63	-68	17.6
Facade Shape factor Level diff.	0	0	0	0	0	0	0	
Insertion Loss	0	0	0	0	0	0	0	
Area (+10LogA), 25 m²	13.9	13.9	13.9	13.9	13.9	13.9	13.9	
Element sound level contribution	34	24	20	14	12	4	-15	
Element 2, STL	-24	-25	-22	-35	-41	-38	-39	30.1
Facade Shape factor Level diff.	0	0	0	0	0	0	0	
Insertion Loss	0	0	0	0	0	0	0	
Area (+10LogA), 5 m²	6.7	6.7	6.7	6.7	6.7	6.7	6.7	
Element sound level contribution	39	32	36	23	22	21	7	
Receiver								
Room volume (-10LogV), 76.62 m³	-7.8	-7.8	-7.8	-7.8	-7.8	-7.8	-7.8	30.4
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	40	33	36	23	22	21	7	
Level difference								
D2m,nT	30.4	31.7	29.3	41.9	48.0	45.3	46.4	LpAinc - LpArev,T0
	30.4	31.7	29.3	41.9	48.0	45.3	46.4	39.2

** Element descriptions:

#1: Solid brick wall

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: Glazing 6/12/6

Glazing (Double):

- Pane 1: 1 x 6 mm Glass
- Cavity: 12 mm
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- 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)

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Margin of error is generally within ± 3 dB

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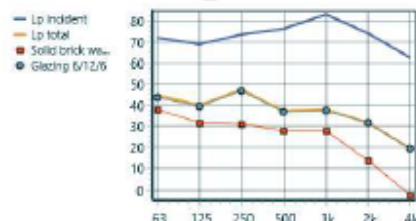
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Date: 06/07/2025

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Octave Band Centre Frequency (Hz)							
Source	63	125	250	500	1k	2k	4k
Incident sound level (freefield)	71.9	69.7	73.3	76.1	82.9	74.0	62.7
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), 25 m²	13.9	13.9	13.9	13.9	13.9	13.9	13.9
Element sound level contribution	38	32	31	28	28	14	-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), 5 m²	6.7	6.7	6.7	6.7	6.7	6.7	6.7
Element sound level contribution	44	39	47	37	38	32	19
Receiver							
Room volume (-10LogV), 76.62 m³	-7.8	-7.8	-7.8	-7.8	-7.8	-7.8	-7.8
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	40	47	37	38	32	19
Level difference							
D2m,nT	30.4	31.7	29.3	41.9	48.0	45.8	46.4
							LpAinc - LpARev,70
							41.3

** Element descriptions:

#1: Solid brick wall

Wall (Single)

• Panel 1: 1 x 225 mm Brick

• Details: Panel Size: 2.7 m x 4.0 m, Partition surface mass = 350 kg/m²

#2: Glazing 6/12/6

Glazing (Double)

• Panel 1: 1 x 6 mm Glass

• Cavity: 12 mm

• Panel 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 = 1200 Hz

Second Floor

Daytime

Outdoor To Indoor Sound Transmission (v10.0.6)

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Margin of error is generally within ± 3 dB

- Key No. 2594

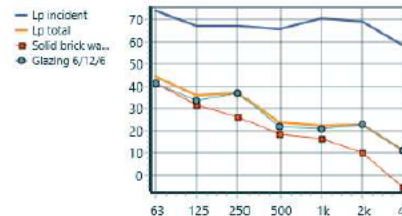
Job Name:

Job No.:

Date: 06/07/2025

File Name:

Initials: info



Octave Band Centre Frequency (Hz)								
Source	63	125	250	500	1k	2k	4k	Overall dBA
Incident sound level (freefield)	74.0	67.3	67.3	65.5	70.4	69.2	58.5	74.1
Path								
Element 1, STL	-37	-40	-45	-51	-58	-63	-68	23.5
Facade Shape factor Level diff.	0	0	0	0	0	0	0	
Insertion Loss	0	0	0	0	0	0	0	
Area (+10LogA), 28 m²	14.5	14.5	14.5	14.5	14.5	14.5	14.5	
Element sound level contribution	41	31	26	19	17	10	5	
Element 2, STL	-24	-25	-22	-35	-41	-38	-39	30.9
Facade Shape factor Level diff.	0	0	0	0	0	0	0	
Insertion Loss	0	0	0	0	0	0	0	
Area (+10LogA), 2 m²	1.8	1.8	1.8	1.8	1.8	1.8	1.8	
Element sound level contribution	42	34	37	22	21	23	11	
Receiver								
Room volume (-10LogV), 66.38 m³	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	31.6
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	44	36	37	24	22	23	11	
Level difference								
D2m,nT	32.8	34.6	33.2	45.0	51.3	49.4	50.5	LpAinc - LpArev,T0 42.5

** Element descriptions:

#1: Solid brick wall

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: Glazing 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

Outdoor To Indoor Sound Transmission (v10.0.6)

Program copyright Marshall Day Acoustics

Margin of error is generally within ± 3 dB

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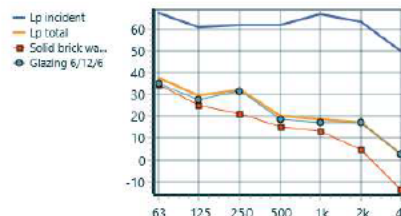
Job Name:

Job No.:

Date: 06/07/2025

File Name:

Initials: info



Octave Band Centre Frequency (Hz)							
Source	63	125	250	500	1k	2k	4k
Incident sound level (freefield)	67.5	61.1	62.2	62.2	66.9	63.6	50.2
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), 28 m ²	14.5	14.5	14.5	14.5	14.5	14.5	14.5
Element sound level contribution	35	25	21	15	13	5	-14
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), 2 m ²	1.8	1.8	1.8	1.8	1.8	1.8	1.8
Element sound level contribution	35	28	32	19	17	17	3
Receiver							
Room volume (-10LogV), 66.38 m ³	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2
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	38	30	32	20	19	17	3
Level difference							
D2m,nT	32.8	34.6	33.2	45.0	51.3	49.4	50.5
							LpAinc - LpArev,T0
							42.9

** Element descriptions:

#1: Solid brick wall

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: Glazing 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

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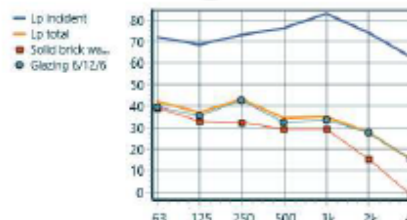
Job Name:

Job No.:

Date: 06/07/2025

File Name:

Initials: info



Octave Band Centre Frequency (Hz)							
Source	63	125	250	500	1k	2k	4k
Incident sound level (freefield)	71.9	66.7	73.3	76.1	82.9	74.0	62.7
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), 28 m ²	14.5	14.5	14.5	14.5	14.5	14.5	14.5
Element sound level contribution	39	33	32	29	29	15	-1
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), 2 m ²	1.8	1.8	1.8	1.8	1.8	1.8	1.8
Element sound level contribution	39	35	43	33	33	28	15
Receiver							
Room volume (-10LogV), 66.38 m ³	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2
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	42	37	43	34	35	28	15
Level difference							
DZm,nT	32.8	34.6	33.2	45.0	51.8	49.4	50.5
	LpAnc - LpARev,T0						
	44.9						

** Element descriptions:

#1: Solid brick wall

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: Glazing 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 = 1200 Hz

Appendix C – Current and Proposed Internal Separating Structures

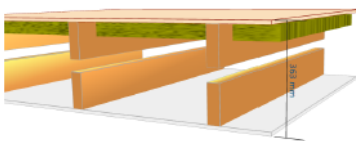
Current Ground/first floor ceiling/floor

Sound Insulation Prediction (v10.0.6)

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R_w 50 dB

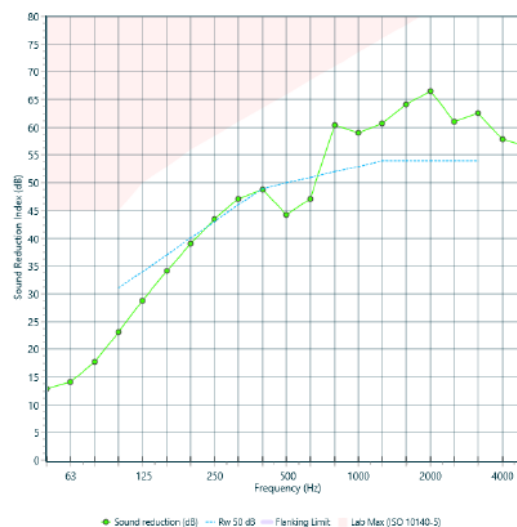
C -2 dB

Ctr -9 dB

System description

Panel 1 1 x 12.5 mm SoftBoard
Frame Separate Joists (144 mm x 47 mm), Stud spacing 600 mm, Cavity Width 338 mm + 60 mm Fibreglass (10kg/m³) 60mm
Panel 2 1 x 12.5 mm Gyproc Fireline 12.5mm
Details Panel Size 2.7 m x 4.0 m, Partition surface mass = 14.4 kg/m², Mass-air-mass resonant frequency = : 60 Hz

freq. (Hz)	R (dB)	Roct (dB)
50	13	
63	14	14
80	18	
100	23	
125	29	27
160	34	
200	39	
250	43	42
315	47	
400	49	
500	44	46
630	47	
800	60	
1000	59	60
1250	61	
1600	64	
2000	67	63
2500	61	
3150	63	
4000	58	58
5000	57	



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

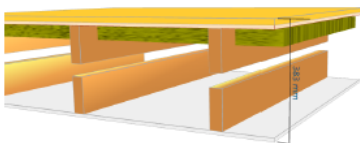
Proposed Ground/first floor ceiling/floor

Sound Insulation Prediction (v10.0.6)

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

Date: 06/07/2025

Job Name:



R_w 62 dB

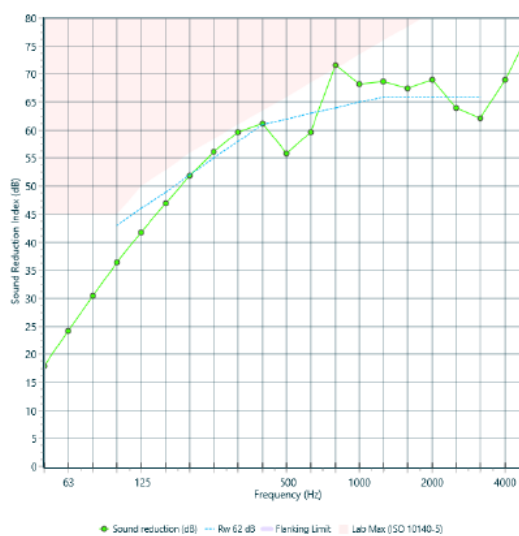
C -2 dB

Ctr -8 dB

System description

Panel 1 1 x 20 mm Flooring Particle Board + 1 x 12.5 mm SoftBoard
Frame Separate Joists (144 mm x 47 mm), Stud spacing 600 mm, Cavity Width 338 mm + 60 mm Fibreglass (10kg/m³) 60mm
Panel 2 1 x 12.5 mm Gyproc Fireline 12.5mm
Details Panel Size 2.7 m x 4.0 m, Partition surface mass = 28.6 kg/m², Mass-air-mass resonant frequency = 40 Hz

freq. (Hz)	R (dB)	Roct (dB)
50	18	
63	24	22
80	31	
100	36	
125	42	40
160	47	
200	52	
250	56	55
315	60	
400	61	
500	56	58
630	60	
800	72	
1000	68	69
1250	69	
1600	67	
2000	69	66
2500	64	
3150	62	
4000	69	66
5000	77	



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

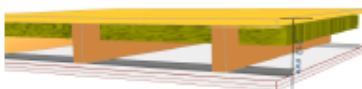
Proposed first/second floor ceiling/floor

Sound Insulation Prediction (v10.0.6)

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

Date: 06/07/2025

Job Name:



R_w 57 dB

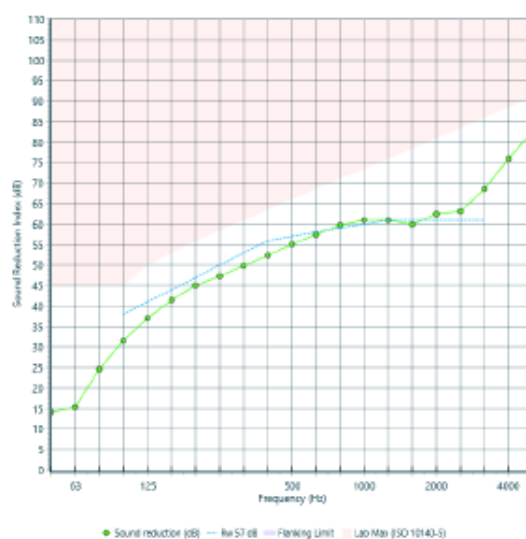
C -2 dB

Ctr -8 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	15	16
80	25	
100	31	
125	37	35
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	



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

Proposed Stairwell/flat wall

Sound Insulation Prediction (v10.0.6)

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Date: 06/07/2025

Job Name:



R_w 58 dB

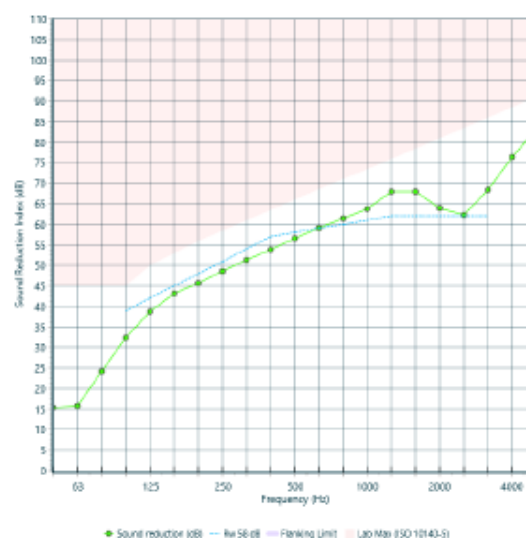
C -2 dB

Ctr -8 dB

System description

Panel 1 1 x 15 mm Gyproc Fireline 15mm + 1 x 15 mm Gyproc SoundBloc 15mm
Frame Timber stud + Resilient rail/bar (94 mm x 47 mm), Stud spacing: 600 mm, Cavity Width 106 mm + 60 mm Fibreglass (10kg/m3) 60mm
Panel 2 1 x 15 mm Gyproc Fireline 15mm + 1 x 15 mm Gyproc SoundBloc 15mm
Details Panel Size: 2.7 m x 4.0 m, Partition surface mass = 49.2 kg/m², Mass-air-mass resonant frequency = 51 Hz

freq. (Hz)	R (dB)	Roct (dB)
50	15	
63	16	17
80	24	
100	32	
125	39	36
160	43	
200	46	
250	49	48
315	51	
400	54	
500	56	56
630	59	
800	61	
1000	64	64
1250	68	
1600	68	
2000	64	64
2500	62	
3150	68	
4000	76	72
5000	83	



- 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.