



FRESHWATER PARADE BISHOPRIC HORSHAM RH12 1QD

NOISE MITIGATION AND VENTILATION SCHEME REPORT

29 July 2026

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Revision	Description	Issued by	Issue date
00	First Issue - Noise Assessment Report	Damien Hesnan	29/07/2026
01	Amendments to Glazing Specifications and Ventilation	Nilav Babariya	23/09/2026

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1.0 INTRODUCTION

Aran Acoustics Ltd, in collaboration with Airtight Building Solutions Ltd, have been appointed to prepare a Noise Mitigation and Ventilation Scheme for the proposed conversion of the first-floor storage accommodation at Freshwater Parade, Bishopric, Horsham, RH12 1QD into six self-contained one-bedroom flats.

The report has been prepared to support the discharge of Planning Condition 1 and develops the recommendations of the approved RPS Noise Report, Reference JAJ03272-REPT-01-R1 dated 08 November 2022, into a detailed façade and ventilation specification.

Façade sound insulation calculations have been undertaken for the worst-case front living room and rear bedroom using the approved external noise levels and representative road traffic octave-band spectra. The calculations establish the minimum glazing and ventilation performance required to achieve the internal noise criteria within BS 8233:2014.

Following completion of the works, a separate post-completion validation survey and report will be undertaken in accordance with the planning condition.

2.0 PLANNING CONDITION – NOISE AND VENTILATION

Planning permission for the development was granted subject to Planning Condition 1, which states:

"Prior to the commencement of development, a scheme of noise and vibration attenuation and ventilation sufficient to prevent overheating and maintain thermal comfort shall be submitted to and approved in writing by the Local Planning Authority.

The scheme shall be designed by a suitably qualified acoustic consultant in accordance with the recommendations of the Noise Report prepared by RPS (Reference JAJ03272-REPT-01-R1 dated 08 November 2022) and shall achieve the standards detailed in BS 8233 without relaxation for exceptional circumstances.

Occupation shall not be permitted to commence until the approved details are fully implemented and a validation report has been submitted to and approved in writing by the Local Planning Authority. The approved noise and vibration attenuation measures shall thereafter be retained and maintained in working order for the duration of the use in accordance with the approved details."

This report has been prepared to satisfy the acoustic requirements of Planning Condition 1 by developing the recommendations contained within the approved RPS Noise Report into a detailed façade sound insulation and ventilation scheme.

The report specifies the minimum glazing and ventilation performance required to achieve the internal noise criteria contained within BS 8233:2014. A separate post-completion validation survey and report will be undertaken following completion of the development to demonstrate compliance with the approved scheme prior to occupation.

3.0 EXISTING NOISE ENVIRONMENT

3.1 Site Description

The application site comprises the conversion of the existing first-floor storage accommodation above the ground-floor commercial units at Freshwater Parade, Bishopric, Horsham into six self-contained one-bedroom flats.

The development fronts Bishopric (A281) within Horsham town centre, where road traffic represents the dominant source of environmental noise. The principal living rooms are located on the front elevation overlooking Bishopric, whilst the bedrooms are located on the quieter rear elevation.

3.2 External Noise Levels

This assessment has been undertaken using the environmental noise data presented within the approved RPS Noise Report (Reference JAJ03272-REPT-01-R1 dated 08 November 2022). No additional environmental noise survey has been undertaken.

The external noise levels adopted for the façade assessment are summarised in Table 3.1.

Façade	Assessment Period	External Noise Level
Front Elevation	Daytime LAeq,16h	67 dBA
Rear Elevation	Night-time LAeq,8h	54 dBA
Rear Elevation	Night-time LAFmax	71 dBA

Table 3.1 - Adopted External Noise Levels

3.3 Façade Assessment

Façade break-in calculations have been undertaken using the adopted external noise levels together with representative road traffic octave-band spectra. A 3 dB design allowance has been incorporated within the calculations to provide an appropriate engineering margin.

The calculations establish the minimum glazing and ventilation performance required to achieve the internal noise criteria contained within BS 8233:2014. The results of the façade assessment are presented in Section 5.0.

4.0 ASSESSMENT CRITERIA

The planning condition requires the development to achieve the internal noise criteria within BS 8233:2014 without relaxation.

The following criteria have therefore been adopted.

Room	Period	Internal Noise Criterion
Living rooms	07:00–23:00 hours	35 dBA LAeq,16h
Bedrooms	23:00–07:00 hours	30 dBA LAeq,8h
Bedrooms	Night-time maximum events	45 dBA LAFmax

Table 4.1 – Internal Noise Criteria

BS 8233 advises that regular individual noise events may require separate consideration within bedrooms. The 45 dBA LAFmax criterion has therefore been adopted for the assessment of night-time maximum noise events.

The RPS assessment also identified that open windows would not provide suitable acoustic conditions within the rear bedrooms. Background ventilation should therefore be provided with windows closed using either acoustically attenuated ventilators or a mechanical ventilation system.

5.0 BS8233 FAÇADE ASSESSMENT

Façade noise break-in calculations have been undertaken for the worst-case front living room and rear bedroom using the approved layout, adopted external noise levels and representative road traffic octave-band spectra.

A 3 dB design allowance has been included within the calculations. Sample calculation sheets are provided in Appendix C.

5.1 External Envelope Construction

The existing external walls are understood to comprise a minimum 300 mm cavity masonry construction.

The façade calculations indicate that the solid wall construction is not the controlling element, provided the existing walls are retained in good condition and all junctions and service penetrations are fully sealed.

Building Element	Example Construction	Sound Insulation R_w
Cavity Wall	100mm Brick / 100mm Cavity / 100mm Block / Plasterboard Lining	53 dB

Table 5.1 - External Wall Construction

Any local alterations or infill sections should achieve an acoustic performance equal to or greater than the existing wall construction.

5.2 Glazing Requirements

The minimum glazing performances are set out in Table 5.2.

Location	Ventilation Strategy	Minimum Sound Insulation	Example Glazing Specification
Front living rooms	MVHR with no façade ventilators	34 dB R_w	4 mm glass / 16 mm cavity / 6 mm glass
Rear bedrooms	MVHR with no façade ventilators	31 dB R_w	4 mm glass / 12 mm cavity / 4 mm glass

Table 5.2 – Minimum Glazing Performance

The above glazing configurations are provided as examples only. Alternative systems may be used where the complete installed window assembly is demonstrated by suitable acoustic test data to achieve an equal or greater performance.

The specified acoustic performance should apply to the complete window system, including the glazing, frame, seals, opening mechanism and perimeter installation.

5.3 Ventilation

MVHR system is proposed by design team; all ventilation products shall be installed in accordance with the manufacturer's recommendations and sealed to prevent air leakage around the perimeter of the installation. Trickle ventilators should not be installed within the façade. Under this arrangement, the front living room glazing requirement are required to achieve 34 dB Rw.

5.4 Assessment Outcome

The above glazing and ventilation specifications are predicted to achieve:

Room	Predicted Internal Level	Criterion
Front living room	35 dBA LAeq,16h	35 dBA LAeq,16h
Rear bedroom	30 dBA LAeq,8h	30 dBA LAeq,8h

Table 5.3 - Predicted Internal Noise Levels

Compliance is therefore predicted with the BS 8233 internal noise criteria, subject to correct product selection, installation and sealing.

6.0 MECHANICAL SERVICES

No external mechanical plant is proposed as part of the development and, therefore, a BS 4142 assessment is not required.

As the proposed ventilation strategy is whole house internal MVHR, the following recommendations should be incorporated into the detailed mechanical services design:

- Internal fan units should be selected to minimise regenerated noise within the dwellings.
- Ductwork should incorporate flexible connections where appropriate to minimise the transmission of structure-borne vibration.
- Any ductwork passing through separating walls or floors should be acoustically sealed to maintain the sound insulation performance of the building envelope.
- External air intake and exhaust terminals should be positioned to avoid compromising the façade sound insulation performance.

7.0 POST-COMPLETION VALIDATION

Planning Condition 1 requires the approved mitigation measures to be validated following completion of the development and prior to occupation.

Following installation of the glazing and ventilation systems, a post-completion acoustic assessment should be undertaken to confirm that the approved mitigation measures have been implemented and that the internal noise criteria of BS 8233:2014 have been achieved.

The validation assessment should comprise:

- Review of the installed glazing and ventilation specifications.
- Inspection of the completed mitigation measures.
- 24-hour unattended internal noise monitoring within the worst-case habitable room.
- Assessment of the measured internal noise levels against the BS 8233 design criteria.
- Preparation of a Validation Report for submission to the Local Planning Authority.

The Validation Report should demonstrate compliance with the approved Noise Mitigation and Ventilation Scheme and satisfy the requirements of Planning Condition 1 prior to occupation of the development.

APPENDIX A – SITE PLAN



PLANNING
NOT FOR CONSTRUCTION

Scale 1:200
0 5 10 20 meters

Revision	Date	Reason	Initial	Notes
				Key
				Red line boundary

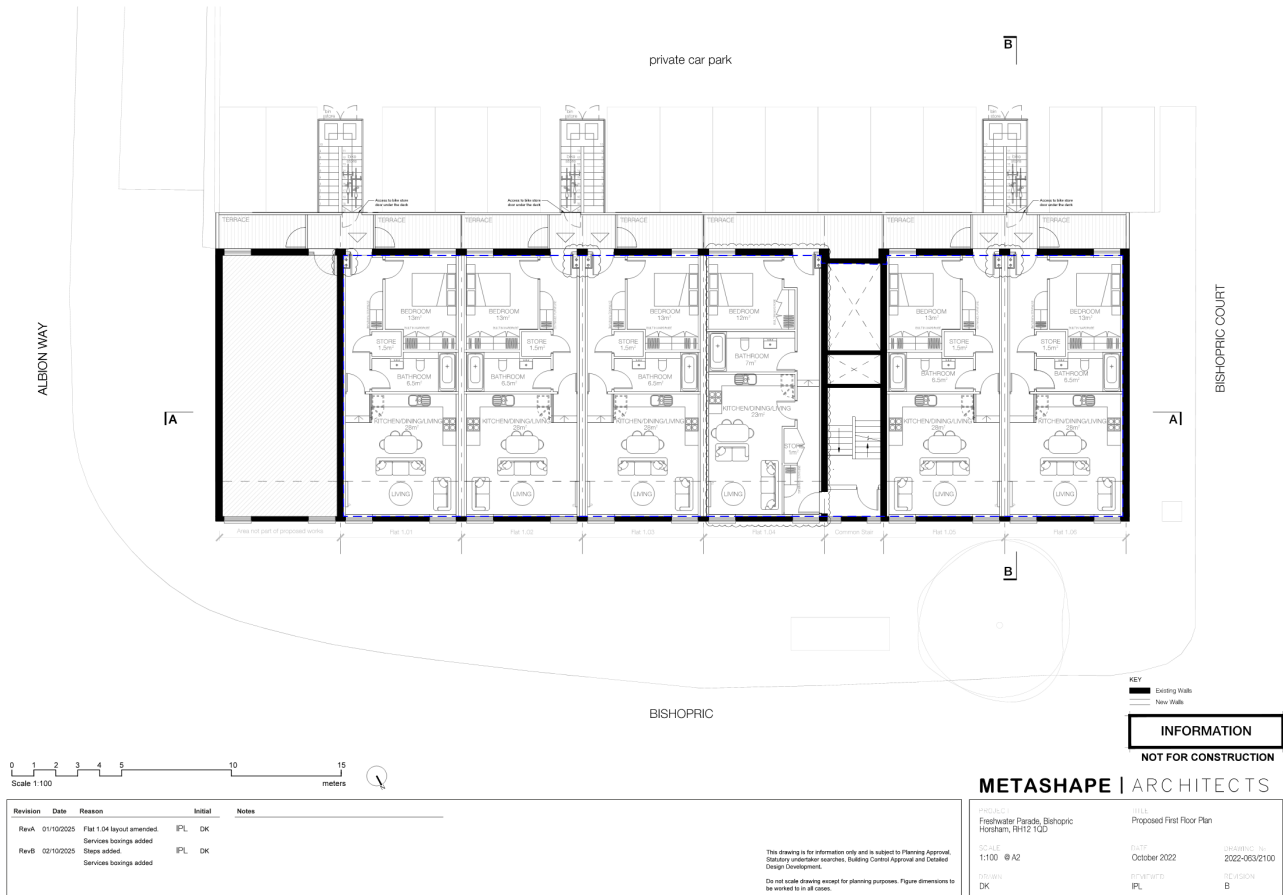
Note: All external alterations are subject to a separate Planning Application.

This drawing is for information only and is subject to Planning Approval, Statutory undertaker searches, Building Control Approval and Detailed Design Development.
Do not scale drawing except for planning purposes. Figure dimensions to be worked to in all cases.

METASHAPE | ARCHITECTS

PROJECT Freshwater Parade, Bishopric Horsham, RH12 1QD	TITLE Existing Site Plan
SCALE 1:200 @ A1	DATE October 2022
DRAWN DK	DESIGNED JPL
	REVISION 2022-063/P1010

APPENDIX B – APPROVED FLOOR PLANS



C:\Projects\BS8233 Assessments\260728 - Freshwater Parade Horsham\Cals\BS8233 Façade Calc - Freshwater Parade Horsham.xlsm\1.F -KLD (Day) (No Vents)

Freshwater Parade Horsham: 1.F -KLD (Day) (No Vents)

BS8233 Façade Noise Break In Calculation		125	250	500	1000	2000	4000	dBA
Average External Noise Level - L_{eq}		65.5	63.1	61.9	62.3	59.5	56.0	66.5
Maximum External Noise Level - L_{max}								
Safety Tolerance	3 dB	3.0	3.0	3.0	3.0	3.0	3.0	
Correction Factors								
Traffic Flow Correction	0.0 dB	0.0	0.0	0.0	0.0	0.0	0.0	
Distance Correction $L2 = L1 - 20 \log(D1/D2)$	0.0 dB	0.0	0.0	0.0	0.0	0.0	0.0	
Distance Correction for Line Source - Façade 1								
Barrier Correction $A_b = 10 \log_{10}(D + d)$ dB	0.0 dB	0.0	0.0	0.0	0.0	0.0	0.0	
Angle of View Correction $A_v = 10 \log(\theta/180)$	180	0.0	0.0	0.0	0.0	0.0	0.0	
Noise Level at Façade		68.5	66.1	64.9	65.3	62.5	59.0	69.5
Calculation of environmental noise break-in to residential rooms								
$L2 = L1 - R + 10 \log(S/A) + 3 \text{ dB (Freefield version)}$								
Room Volume =	67.2 m ³							
Reverberation Time =	0.5 s	0.5	0.5	0.5	0.5	0.5	0.5	
$10 \log(S/A)$		-2.2	-2.2	-2.2	-2.2	-2.2	-2.2	
FAÇADE Elements								
Total Façade Area 1		13.2 m ²						
Glazing Area, S_g - Façade 1		5.6 m ²						
4mm Glass / 16mm Air Cavity / 6mm Glass		SRI	24	25	29	41	39	43
		Sg/Sf	-28	-29	-33	-45	-43	-47
Predicted noise level in building from glazing 1			41.6	38.2	33.0	21.4	20.6	13.1
Solid Area, S_w - Façade 1		7.6 m ²						
300mm Brick/Block Cavity Wall		SRI	45	43	47	57	67	77
		Sw/Sf	-47	-45	-49	-59	-69	-79
Predicted noise level through solid façade 1			21.9	21.5	16.3	6.7	-6.1	-19.6
Roof/Floor Area, S_c - Façade 1		0.0 m ²						
No Roof		SRI	26	42	49	54	56	56
		Sc/Sf	0	0	0	0	0	0
Predicted noise level through solid façade 3 / Roof			0.0	0.0	0.0	0.0	0.0	0.0
Trickle Vent(s) - Façade 1		0 Vent						
No Trickle Vent		Dne	0	0	0	0	0	0
		Ao/S	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!
Predicted noise level through trickle vents	$L_{ff-Dne} + 10 \log(A0/A) + K$		0.0	0.0	0.0	0.0	0.0	0.0
Combined Internal Noise Level - L_{eq}		41.6	38.3	33.1	21.7	20.8	14.2	34
Target Internal Noise Level (dBA)								35
								Pass

C:\Projects\BS8233 Assessments\260728 - Freshwater Parade Horsham\Calcs\BS8233 Façade Calc - Freshwater Parade Horsham.xlsm\1.F -KLD (Day) (No Vents)

Freshwater Parade Horsham: 1.F -Bed (Night)

BS8233 Façade Noise Break In Calculation		125	250	500	1000	2000	4000	dBA
Average External Noise Level - L_{eq}		52.8	51.1	49.2	50.5	47.2	41.8	54.2
Maximum External Noise Level - L_{max}								
Safety Tolerance	3 dB	3.0	3.0	3.0	3.0	3.0	3.0	
Correction Factors								
Traffic Flow Correction	0.0 dB	0.0	0.0	0.0	0.0	0.0	0.0	
Distance Correction $L2 = L1 - 20 \log(D1/D2)$	0.0 dB	0.0	0.0	0.0	0.0	0.0	0.0	
Distance Correction for Line Source - Façade 1								
Barrier Correction $A_b = 10 \log_{10}(D + d)$ dB	0.0 dB	0.0	0.0	0.0	0.0	0.0	0.0	
Angle of View Correction $A_v = 10 \log(\theta/180)$	180	0.0	0.0	0.0	0.0	0.0	0.0	
Noise Level at Façade		55.8	54.1	52.2	53.5	50.2	44.8	57.2
Calculation of environmental noise break-in to residential rooms								
$L2 = L1 - R + 10 \log(S/A) + 3 \text{ dB}$ (Freefield version)								
Room Volume =	31.2 m ³							
Reverberation Time =	0.5 s	0.5	0.5	0.5	0.5	0.5	0.5	
$10 \log(S/A)$		-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	
FAÇADE Elements								
Total Façade Area 1		8.6 m ²						
Glazing Area, S_g - Façade 1		2.5 m ²						
4mm Glass / 12mm Air Cavity / 4mm Glass		SRI	23	18	26	38	44	38
		Sg/Sf	-28	-23	-31	-43	-49	-43
Predicted noise level in building from glazing 1			29.7	33.0	23.1	12.4	3.1	3.7
Solid Area, S_w - Façade 1		6.1 m ²						
300mm Brick/Block Cavity Wall		SRI	45	43	47	57	67	77
		Sw/Sf	-46	-44	-48	-58	-68	-78
Predicted noise level through solid façade 1			11.6	11.9	6.0	-2.7	-16.0	-31.4
Roof/Floor Area, S_c - Façade 1		0.0 m ²						
No Roof		SRI	26	42	49	54	56	56
		Sc/Sf	0	0	0	0	0	0
Predicted noise level through solid façade 3 / Roof			0.0	0.0	0.0	0.0	0.0	0.0
Trickle Vent(s) - Façade 1		1 Vent						
Simon Acoustic FV		Dne	40	35	35	31	33	35
		Ao/S	-39	-34	-35	-30	-32	-34
Predicted noise level through trickle vents	$L_{ff-Dne} + 10 \log(A_0/A) + K$		19.1	22.3	19.9	25.5	20.2	12.8
Combined Internal Noise Level - L_{eq}		30.2	33.4	24.9	25.8	20.5	14.2	30
Target Internal Noise Level (dBA)								30
								Pass

APPENDIX D – INSUL DATA SHEETS

Sound Insulation Prediction (v8.0.7)

Program copyright Marshall Day Acoustics 2015

- Key No. 1548

Margin of error is generally within $R_w \pm 3$ dB

Job Name:

Job No.:

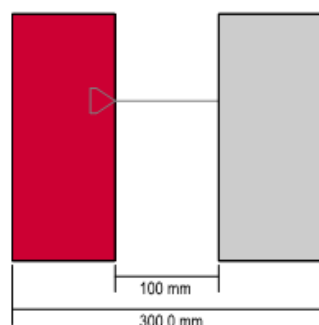
Page No.:

Notes:

Date: 17 Oct 24

Initials: dhesn

File Name: insul



R_w	53 dB
C	-1 dB
C_{tr}	-3 dB
D_{nTw}	55 dB
	(V50m3)
	(A:11m2)

System description

Panel 1 : 1 x 100.0 mm mm Brick (? : 1600 kg/m³, E: 8.9 GPa, ? : 0.02)

Cavity: Butterfly Tie: Stud spacing 600 mm

Panel 2 : 1 x 100.0 mm mm Concrete Block (? : 1350 kg/m³, E: 8.3 GPa, ? : 0.02)

Mass-air-mass resonant frequency = 21 Hz

frequency (Hz)	R(dB)	R(dB)
50	36	
63	39	38
80	42	
100	44	
125	45	45
160	46	
200	46	
250	43	43
315	41	
400	44	
500	48	47
630	51	
800	54	
1000	57	57
1250	61	
1600	64	
2000	68	67
2500	71	
3150	74	
4000	78	77
5000	81	

Panel Size 2.7x4 m; Mass 295.0 kg/m²

