

46 Henry Street Ancoats, Manchester

Acoustic Assessment Report -
Planning Condition 8, Part A (Acoustic Insulation)
Planning Condition 9, Part A (Plant Noise)

Client:

Fresh Fuel Bar (Ancoats) Limited
3rd Flr, Eastgate, Castle Street
Manchester, M3 4LZ

Date:

30 June 2025

Our Ref:

22025-RP-2-R0



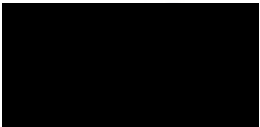
**JAMESON
ACOUSTICS**

Consultants in acoustics,
noise and vibration

Document Control

Revision	Date	Author	Description
0	30-06-2025	AJ	-

This report has been prepared with all reasonable skill, care and diligence for the sole benefit, use and information of the aforementioned Client in accordance with the purposes and terms agreed between ourselves and the Client. The liability of Jameson Acoustics Limited in respect of the information contained within this report will not extend to any third party.

Author	Andrew Jameson (AJ)
Position	Director
Qualifications	BSc(Hons) Acoustics, MIOA, MIET
Signature	
Date	30-06-2025

Contents

1.0 Introduction 4

2.0 Project & Assessment Overview 4

3.0 PC 8 – Operational Noise Egress (Acoustic Insulation) 6

 3.1 Acoustic Criteria 6

 3.2 External Building Fabric 7

 3.3 Anticipated Operational Noise Levels 8

 3.4 Assessment 8

4.0 PC 9 – Plant Noise Emissions 10

 4.1 Limits 10

 4.2 Plant Design Proposals & Noise Mitigation 10

 4.3 Assessment 12

7.0 Conclusion..... 13

Appendix A – Acoustic Terminology 14

1.0 Introduction

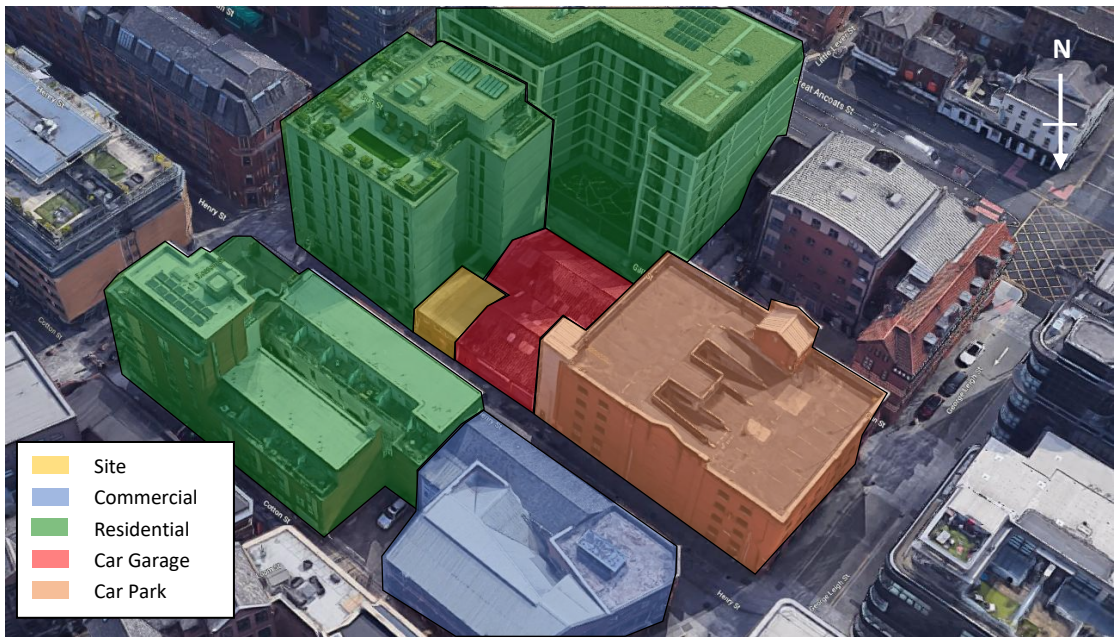
Jameson Acoustics Limited has been commissioned by Fresh Fuel Bar (Ancoats) Limited to provide acoustic design services to assist in the discharge of Part A of two planning conditions associated with the proposed development of 46 Henry Street in Ancoats, Manchester. The conditions are as follows.

No	Wording
8	Notwithstanding the noise and vibration section of the ES stamped as received by the City Council, as Local Planning Authority, on the 19 January 2018, (a) prior to the first use of each commercial unit and gym area within each phase as indicated on drawings A2942 198 R16, A2943 199 R16 and A2943 200 R16 stamped as received by the City Council, as Local Planning Authority, on the 19 January 2018, a scheme of acoustic insulation shall be submitted for approval in writing by the City Council, as Local Planning Authority. (b) The approved scheme shall then be implemented and a post completion survey submitted for approval in writing by the City Council, as Local Planning Authority, prior to the first use of each of the commercial units and the gym area within each phase. The measures implemented shall be retained and maintained for as long as the development remains in use. <i>Reason - In order to limit the outbreak of noise from the commercial premises pursuant to policies SP1 and DM1 of the Core Strategy (2007) and saved policy DC26 of the Unitary Development Plan for the City of Manchester (1995).</i>
9	Notwithstanding the noise and vibration section of the ES stamped as received by the City Council, as Local Planning Authority, on the 19 January 2018, (a) prior to the first occupation of the residential accommodation within each phase hereby approved, the accommodation shall be insulated in accordance with a scheme submitted for approval in writing by the City Council, as Local Planning Authority. (b) The approved scheme shall then be implemented and a post completion survey submitted for approval in writing by the City Council, as Local Planning Authority, prior to the first occupation of the residential accommodation within each phase. The measures implemented shall be retained and maintained for as long as the development remains in use. <i>Reason: To secure a reduction in noise from traffic or other sources in order to protect future residents from noise disturbance pursuant to policies SP1, H1 and DM1 of the Core Strategy (2007) and saved policy DC26 of the Unitary Development Plan for the City of Manchester (1995).</i>

2.0 Project & Assessment Overview

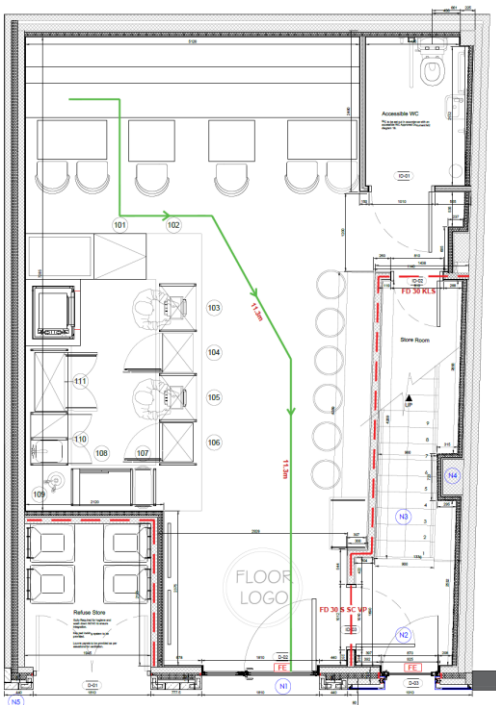
The building is located on the south side of Henry Street in the block bounded by George Leigh Street and Blossom Street. The property is a two-storey building with a pavement-side front elevation. It is adjoined to a single storey car MOT garage to the west and south, and is next door to a residential apartment building to the east (not structurally connected).

The surrounding area is a mix of commercial and residential properties. The nearest noise sensitive residential windows are noted to be those in the adjacent apartment blocks to the east and across Henry Street to the north. See 3D Site Plan below.

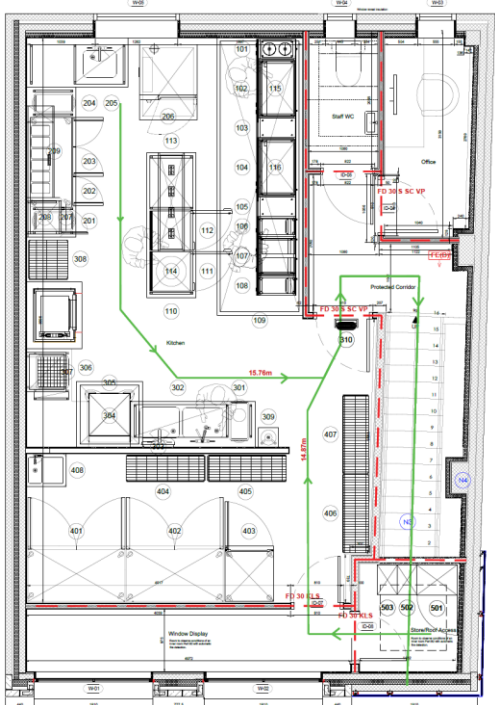


3D Site Plan (© maps.google.co.uk)

The final intent for the proposed redevelopment is for the conversion of the ground and first floor of 46 Henry Street from office/storage to a Fresh Fuel Bar restaurant. The ground floor will comprise a servery and dinign space, with an accessible toilet to the rear. The first floor will comprise the main kitchen with staff WC and office to the rear. The main frontage at first floor level will provide a room along the frontage which shall be used as a window display space, providing a buffer of kitchen noise breakout. See below Floor Plans.

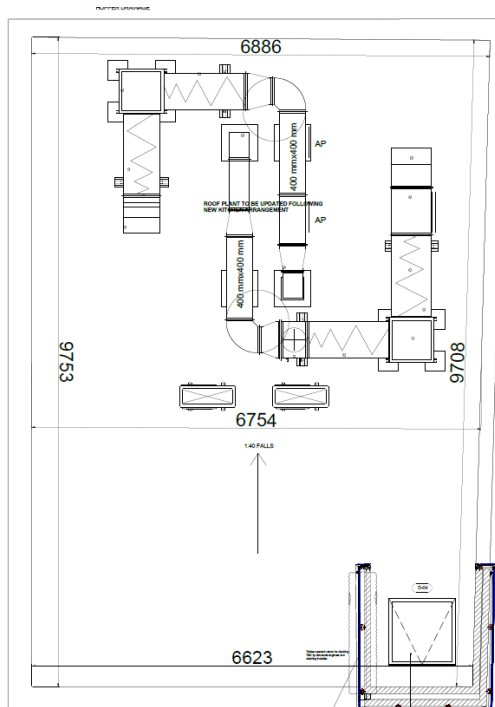


Ground Floor Plan



First Floor Plan

The roof shall be used to mount external plant items, which comprises a supply and an extract fan, and 2nr condenser (heat pump) units, as shown below.



Roof Plan

The facility (and associated plant) will operate during daytime hours only, 07:00-23:00hr.

3.0 PC 8 – Operational Noise Egress (Acoustic Insulation)

3.1 Acoustic Criteria

The Council consider that new developments should contribute and enhance the area in which they are located and where possible, i.e. prevent ‘noise creep’, contribute to the improvement of people’s health and quality of life as per the NPSE. With this in mind, the design objective should be:

‘The development should be designed so as to achieve a rating level of 5dB (L_{Aeq}) below the typical background (L_{A90}) level at the nearest noise sensitive location.’

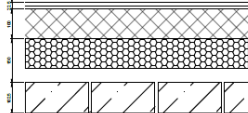
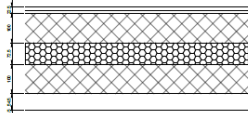
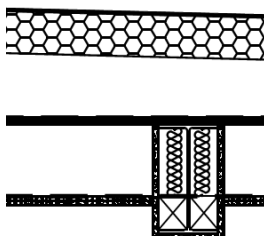
NB: There are no structurally connected dwellings.

Based on the results of the baseline noise survey, presented in our Noise Impact Assessment Report 22025-RP-1-R3, the following noise limits would need to be achieved at the nearest noise sensitive receptors (-5 dB below representative L_{90} noise levels).

Period	Maximum Operational Noise Limits, L_{eq} (dB) at Octave Band Centre Frequency (Hz)							dB L_{Aeq}
	63	125	250	500	1k	2k	4k	
Front (Henry St)	52	45	41	40	39	33	25	43
Rear	49	43	36	35	35	29	19	38

3.2 External Building Fabric

The finalised external building fabric constructions are as follows:

Element	Sketch	Specification
External walls		12.5 mm heavy duty plasterboard on dabs, 100 mm blockwork (~1,350 kg/m³), 150 mm cavity with 100 mm Kingspan Kooltherm K108, 102.5 mm original facing brick.
		12.5 mm heavy duty plasterboard on dabs, 100 mm blockwork (~1,350 kg/m³), 150 mm cavity with 100 mm Kingspan Kooltherm K108, 100 mm blockwork (~1,350 kg/m³), Zinc cladding on metal carrier.
Roof		120 mm Kingspan Greenguard w/ 1:40 falls VCL on 18 mm Plywood, 200 mm deep joists with 100 mm mineral wool between joists, 2 x 12.5 mm Fireline plasterboard.
Windows		Aluminium fixed frames, Conventional double glazing (min. 6-16-6 mm).
Entrance door		Aluminium fixed framed with side hinge, Conventional double glazing (min. 6-16-6 mm).

The 'apparent' sound reduction performance of the above elements has been estimated based on our in-house database and using Insul prediction software, with realistic flanking limitations applied. The values, as used in our calculations, are presented below. For external walls, the lower performing of the two systems has been taken.

Room	Est. Apparently Sound Reduction Index, R' (dB) at Octave Band Centre Frequency (Hz)						
	63	125	250	500	1k	2k	4k
External walls	38	43	47	55	58	62	65
Roof	20	32	38	45	50	53	57
Windows, entrance door	23	20	22	28	36	34	38

3.3 Anticipated Operational Noise Levels

The following table presents source noise level data obtained from measurements within the Federal Café on Deansgate during a busy service. This data is considered reasonably representative, perhaps too pessimistic, but suitable to inform a worst-case assessment. During the survey, Federal Café was almost full, playing moderate levels of amplified music with an active kitchen and cooker hood extract fans running.

Space	Reverberant Sound Pressure Levels, L_{eq} (dB) at Octave Band Centre Frequency (Hz)							dB L_{Aeq}
	63	125	250	500	1k	2k	4k	
Customer seating, servery	67	65	67	69	65	61	59	69
Kitchen	64	69	69	68	64	62	58	70

3.4 Assessment

The nearest noise sensitive windows to the site are residential windows directly across Henry Street (approx. 15 m from the frontage) and to the rear (south-east, high level windows in the adjacent high rise apartment building approx. 10 m distance).

The following tables present our assessment of operational noise egress to each receptor. Note, for the first floor frontage, a -10 dB has been applied to account for the 'buffer' room (window signage space). The losses will be much greater than this, but a conservative values has been applied to simplify the calculation.

Our calculations consider the industry standard equation for noise breakout, as follows.

$$SPL_{out} = SPL_{in} - SRI + 10 \log_{10} \left(\frac{S}{r^2} \right) - 14$$

, where SPL_{out} in the resultant noise level outside, SPL_{in} is the reverberant noise level inside the venue, SRI is the composite sound reduction of the façade, S is the area of the façade (m^2), and r is the distance.

Apartments over Henry St

Desc.	dB, at Octave Band Centre Frequency, Hz							A-weighted, dB(A)
	63	125	250	500	1k	2k	4k	
Ground floor - frontage								
SPL _{in} servery, L _{eq,5min}	67	65	67	69	65	61	59	69
SRI, composite	-27	-24	-26	-33	-40	-39	-43	-
<i>SRI – External walls</i>	38	43	47	55	58	62	65	-
<i>SRI – Windows</i>	23	20	22	28	36	34	38	-
10log(S/r ²), S=21m ² , r=15m	-10	-10	-10	-10	-10	-10	-10	-
-14	-14	-14	-14	-14	-14	-14	-14	-
SPL _{out}	16	17	17	12	1	<0	<0	13
First floor – frontage								
SPL _{in} kitchen, L _{eq,5min}	64	69	69	68	64	62	58	70
SRI, composite	-27	-24	-26	-32	-40	-38	-42	-
<i>SRI – External walls</i>	38	43	47	55	58	62	65	-
<i>SRI – Windows</i>	23	20	22	28	36	34	38	-
Buffer zone	-10	-10	-10	-10	-10	-10	-10	-
10log(S/r ²), S=21m ² , r=15m	-10	-10	-10	-10	-10	-10	-10	-
-14	-14	-14	-14	-14	-14	-14	-14	-
SPL _{out}	3	11	9	2	<0	<0	<0	8
First floor – roof								
SPL _{in} kitchen, L _{eq,5min}	64	69	69	68	64	62	58	70
SRI, roof	-20	-32	-38	-45	-50	-53	-57	-
10log(S/r ²), S=58m ² , r=25m	-10	-10	-10	-10	-10	-10	-10	-
Angle correction (cos(deg))	-4	-4	-4	-4	-4	-4	-4	-
-14	-14	-14	-14	-14	-14	-14	-14	-
SPL _{out}	16	9	3	<0	<0	<0	<0	7
Cumulative								
Cumulative SPL _{out}	19	18	18	13	5	<0	<0	14
Noise limit, L _{eq,5min}	52	45	41	40	39	33	25	43
Compliance	✓	✓	✓	✓	✓	✓	✓	✓

Apartments above Roof (to Rear)

Desc.	dB, at Octave Band Centre Frequency, Hz							A-weighted, dB(A)
	63	125	250	500	1k	2k	4k	
First floor – roof								
SPL _{in} kitchen, L _{eq,5min}	64	69	69	68	64	62	58	70
SRI, roof	-20	-32	-38	-45	-50	-53	-57	-
10log(S/r ²), S=58m ² , r=10m	-2	-2	-2	-2	-2	-2	-2	-
-14	-14	-14	-14	-14	-14	-14	-14	-
SPL _{out}	28	21	15	7	<0	<0	<0	12
Noise limit, L _{eq,5min}	49	43	36	35	35	29	19	38
Compliance	✓	✓	✓	✓	✓	✓	✓	✓

The results demonstrate compliance with the MCC external noise breakout criterion.

4.0 PC 9 – Plant Noise Emissions

4.1 Limits

Based on the surveyed ‘representative’ background noise levels and the requirements of the Local Authority, the following plant noise emission limits are to be achieved incident onto noise sensitive residential windows with all proposed plant operating simultaneously.

Receptor Location	Plant Noise Rating Limit, L _{A,r,T,r} ref. BS 4142 (dB)	
	Daytime (07:00-23:00)	Night-time (23:00-07:00)
North (apartments over Henry Street)	43	36
South (adjacent apartment block)	38	34

4.2 Plant Design Proposals & Noise Mitigation

The design proposals for external plant allow for the installation of 2nr new rooftop condenser units, an extract fan and a supply fan, as shown in Section 2.0.

Based on the below indicative plant area location, the plant will be ~13-17 metres away from apartments over Henry Street and ~7-9 metres away from the nearest noise sensitive windows of the adjacent apartment block (to the rear).



The manufacturer's noise data for the units are tabulated below. This information has been taken directly from manufacturer datasheets and is understood to be representative of the final plant selections operating at full (maximum) duty.

Unit	Index	Sound Level (dB) at OBCF (Hz)							(dB) L _A
		63	125	250	500	1k	2k	4k	
Condenser 1 (CU01) <i>Mitsubishi SUZ-M71VAR1</i>	SPL @ 1m*	57	59	57	52	50	46	40	51
Condenser 2 (CU02) <i>Mitsubishi PUZ-ZM00YKA2</i>	SPL @ 1m*	64	60	57	59	54	51	46	60
Supply Fan (SF) <i>SystemAir MUB450 EV</i>	FAI Intake, SWL	47	60	63	69	73	71	63	-
	Casing, SWL	32	46	47	44	48	49	39	-
Extract Fan (EF) <i>SystemAir MUB450 EV</i>	Exhaust, SWL	50	62	65	71	75	73	65	-
	Casing, SWL	32	46	47	44	48	49	39	-

*heating mode (worst-case)

The air handling equipment will have atmospheric side attenuators, and the following insertion loss values have been provided by the installers.

Atmospheric side attenuator – insertion losses

Unit	Length	Insertion Loss (dB) at OBCF (Hz)							(dBA)
		63	125	250	500	1k	2k	4k	
SF	1250mm	9	14	18	28	28	20	18	-
EF	1250mm	9	14	18	28	28	20	18	-

Based on the above information, the following sound pressure levels at 1m from air handling grilles are calculated. The casing radiated noise for each unit equates to approximately 50 dBA at 1m.

- SF Inlet: 51 dBA at 1m (hemi-spherical)
- EF Outlet : 53 dBA at 1m (hemi-spherical)

Based on the spectral curves above, no acoustic feature correction for tonality is deemed necessary. The units are new and can be expected to operate with smooth ramp up/down characteristics, meaning no correction for impulsivity or intermittency shall be necessary.

4.3 Assessment

Our calculations of resultant noise rating levels to each receptor are summarised below.

Apartments over Henry St						
Description	Condensers		Air Handling Ducts		Air Handling Casings	
	/01	/02	SF	EF	SF	EF
Source Sound Level (dB)	51	60	51	53	50	50
Index	SPL _{L1m}	SPL _{L1m}	SPL _{L1m}	SPL _{L1m}	SPL _{L1m}	SPL _{L1m}
Nr of Units	1	1	1	1	1	1
Correction for Nr of Units (dB)	0	0	0	0	0	0
Distance (m)	13	13	16	14	13	16
Distance Loss (dB)	-22	-22	-24	-23	-22	-24
Directionality ?	0 V 0 H	0 V 0 H	180 V 0 H	0 V 0 H	N/A	N/A
Directionality Correction (dB)	0	0	-12	0	0	0
Reflections - Q factor (reference=2)	2	2	2	2	2	2
Directionality/Reflection Correction (dB)	0	0	0	0	0	0
Screening?	None	None	None	None	None	None
Screening Loss (dB)	0	0	0	0	0	0
Specific Noise Level at NSR, L _{Aeq} (dB)	29	38	15	30	28	26
Acoustic Feature Correction, re. BS 4142 (dB)	0	0	0	0	0	0
Noise Rating Level at Receptor, L _{A,r,Tr} (dB)	29	38	15	30	28	26
10 ^Δ	794	6310	32	1000	631	398
Cumul. Rating Level at Receptor, L _{A,r,Tr} (dB)	40					
Plant Noise Limit (daytime), L _{A,r,Tr} (dB)	43					
Compliance/Exceedance?	-3					

Apartments to Rear						
Description	Condensers		Air Handling Ducts		Air Handling Casings	
	/01	/02	SF	EF	SF	EF
Source Sound Level (dB)	51	60	51	53	50	50
Index	SPL _{L1m}	SPL _{L1m}	SPL _{L1m}	SPL _{L1m}	SPL _{L1m}	SPL _{L1m}
Nr of Units	1	1	1	1	1	1
Correction for Nr of Units (dB)	0	0	0	0	0	0
Distance (m)	10	12	16	14	7	10
Distance Loss (dB)	-20	-22	-24	-23	-17	-20
Directionality ?	45 V 10 H	45 V 45 H	45 V 0 H	135 V 45 H	N/A	N/A
Directionality Correction (dB)	-2	-4	-2	-14	0	0
Reflections - Q factor (reference=2)	2	2	2	2	2	2
Directionality/Reflection Correction (dB)	0	0	0	0	0	0
Screening?	None	None	None	None	None	None
Screening Loss (dB)	0	0	0	0	0	0
Specific Noise Level at NSR, L _{Aeq} (dB)	29	34	25	16	33	30
Acoustic Feature Correction, re. BS 4142 (dB)	0	0	0	0	0	0
Noise Rating Level at Receptor, L _{A,r,Tr} (dB)	29	34	25	16	33	30
10 ^Δ	794	2512	316	40	1995	1000
Cumul. Rating Level at Receptor, L _{A,r,Tr} (dB)	38					
Plant Noise Limit (daytime), L _{A,r,Tr} (dB)	38					
Compliance/Exceedance?	0					

The results demonstrate compliance with the MCC plant noise emissions criterion.

7.0 Conclusion

Jameson Acoustics Limited has been commissioned by Fresh Fuel Bar (Ancoats) Limited to provide acoustic design services to assist in the discharge of Part A of two planning conditions associated with the proposed development of 46 Henry Street in Ancoats, Manchester.

The report confirms the design intent/specifications are expected to provide sufficient control of operational noise breakout (ref. Condition 8) and plant noise emissions (ref. Condition 9), in line with Manchester City Council criteria.

Appendix A – Acoustic Terminology

dB	Decibel - Used as a measurement of sound level. Decibels are not an absolute unit of measurement but an expression of ratio between two quantities expressed in logarithmic form.
dB(A)	The human ear is more susceptible to mid-frequency noise than the high and low frequencies. The 'A'-weighting scale approximates this response and allows sound levels to be expressed as an overall single figure value in dBA. The _A subscript is applied to an acoustical parameter to indicate the stated noise level is A-weighted (e.g. $L_{Aeq,T}$ in dB). Noise levels in dBA do not have a linear relationship to each other; for similar noises, a change in noise level of 10dBA represents a doubling or halving of subjective loudness. A change of 3dBA is only just perceptible.
$L_{Aeq,T}$	$L_{Aeq,T}$ is the equivalent continuous sound pressure level. It is an average of the total sound energy measured over a specified time measurement period, T .
$L_{10,T}$	L_{10} is the noise level exceeded for 10% of the measurement period T (i.e. the quietest 10% of the measurement) and has, for many years, been used in the assessment of road traffic noise.
$L_{90,T}$	L_{90} is the noise level exceeded for 90% of the measurement period T (i.e. the quietest 10% of the measurement) and is often used to describe the 'background' noise level.
L_{max}	L_{max} is the maximum sound pressure level recorded over the measurement period, T . L_{max} is often used in assessing scheduled environmental noise 'events' (such as train passbys), particularly at night where such events may cause sleep disturbance.
R_w	The weighted sound reduction index, R_w , is a single figure description of sound reduction as defined in BS EN ISO 717-1. It is single-number quantity which characterizes the airborne sound insulating properties of a material or building element over a range of frequencies. The R_w is calculated from sound insulation measurements taken in an acoustic laboratory. Sound insulation ratings derived from site measurements are invariably lower than the laboratory figures and are referred to as the apparent weighted sound reduction index, R'_w .
$D_{n,e,w}$	The weighted element-normalised level difference, $D_{n,e,w}$, is a single figure description of the sound insulation performance of small building elements, such as a trickle ventilator.
C_{tr}	C_{tr} is correction term applied against the sound insulation single-number values (e.g. R_w) to provide a weighting against low frequency performance. The reference values used within the C_{tr} calculation are based on urban traffic noise.