

Noise Impact Assessment for Planning Purposes

Job No: 2411071

Dated: 11 November 2025

Report Status: Final

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Document Management					
Issue/Revision	First issue	Revision 1	Revision 2	Revision 3	Final
Job Number	2411071				2411071
Report Number	R01				R01
Remarks	Draft				Final
Issue Date	11 November 2025				11 November 2025
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Authorised by	Paul Trew				Paul Trew
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ANL File Reference	\\ACNOISED1\Shared Folders\Job Files\F - J\J G Hale\Loftus Gardens\Report\2411071R01.docx				

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BRIEF FOR CONSULTANCY:

This report has been prepared by Acoustics & Noise Limited, Newport, South Wales, for J G Hale Construction Ltd, Unit 3 JCG Building, Milland Road Industrial Estate, Neath, SA11 1NJ under the instruction of Matt Hall.

Purchase Order No:

OBJECTIVES:

To investigate the noise impact on the rear façades of the development at Loftus Gardens, Telford Street, Newport, NP19 0FR.

NON-TECHNICAL SUMMARY:

In response to the planning application, ref: **20/1138**, Newport City Council required in condition 13 that “..., an updated noise assessment or noise addendum shall assess and detail the impact of noise associated with general and light industrial use along the site boundary with Phoenix Park. Any assessment must accord with current British Standards and detail mitigation necessary to meet both acceptable external and acceptable internal noise levels”.

Acoustics and Noise Ltd were engaged to provide the information required to satisfy the above and the results are compared with the recommendations given in the relevant British Standard BS8233:2014[1].

The noise mitigation scheme for the site requires that the glazing is in the closed position to control noise ingress and as such, the internal survey was carried out with the windows closed.

All habitable rooms subject to sound mitigation measures require an alternative, effective means of ventilation and from information provided by others the installed ventilation scheme includes an MHVR unit that satisfies the requirements of Approved Document F to provide the required ventilation. The internal noise survey was carried out with the MHVR operating.

The measured internal and external ambient noise levels at confirm that acceptable external and internal noise levels are achieved.

1.0 DESCRIPTION OF SITE

- 1.1 The site is located at Loftus Gardens, Telford Street, Newport, NP19 0FR and at the time of preparing this report was partially completed.
- 1.2 Tests were carried out in Plot 9 which was completed but unoccupied.
- 1.3 The site is in an urban location, and the acoustic climate is characterised by rail traffic noise and activities associated with the adjacent industrial estate.
- 1.4 Views of the measurement locations are presented in Appendix 2.

2.0 DISCUSSION

- 2.1 In response to a planning application ref:20/1138 for the proposed development, planning was granted with the following planning conditions related to noise.:

“12. Prior to the construction of Plots 13-14, 19-20, 25-26 and 38-54, details of mechanical ventilation to all habitable rooms listed in paragraph 4.6 of the Noise and Vibration Assessment shall be provided to the Local Planning Authority (LPA). Following the LPA’s written agreement to the submitted details the scheme shall be installed as approved prior to first occupation of each of the relevant plots and retained thereafter.

Reason: to ensure noise affected rooms can be adequately ventilated with closed windows.

24/0077. Non material amendment approved by Newport City Council 22nd February 2024

13. Prior to the commencement of construction, an updated noise assessment or noise addendum shall assess and detail the impact of noise associated with general and light industrial use along the site boundary with Phoenix Park. Any assessment must accord with current British Standards and detail mitigation necessary to meet both acceptable external and acceptable internal noise levels. Following the LPA’s written agreement, any mitigation required shall be provided as agreed prior to the occupation of any plot that backs onto Phoenix Park and shall be retained thereafter.

Reason: to protect those plots from excessive noise in accordance with policy GP2 of the adopted Local Development Plan”

- 2.2 A subsequent application ref:24/0110 to discharge the conditions was refused with the following germane comments:

“In relation to neighbouring industry, Telford Depot noise was audible during daytime but no mitigation is proposed or deemed required. The Public Protection Manager does not dispute this. No recommendations are made at all in relation to Phoenix Park. The site abuts rear service yard and manoeuvring areas for some units and whilst this area was not in use due to Covid restrictions at time of writing, there appears to be a reasonable prospect that this area will be used by both general and light industrial traffic. A previous acoustic report relating to previous phases of residential development abutting Phoenix Park suggested that an acoustic fence would be ineffective. The Public Protection Manager advised that the

provision of a fence to act against low grade noise in the industrial area was preferable and the applicant agreed to this. This scheme appears to be at similar risk, potentially more, but having regard to the relationship of existing housing to the industrial estate there is a reasonable prospect of any noise exposure being entirely capable of mitigation. It is recommended that additional assessment is secured by way of condition, to be accompanied by appropriate mitigation along this boundary”.

2.3 Acoustics and Noise Ltd were engaged by J G Hale Construction Ltd to undertake an assessment to satisfy the requirements of Newport CC as detailed above.

2.4 **DESCRIPTION OF MITIGATION INCORPORATED IN THE DEVELOPMENT DESIGN.**

2.4.1 The following measures are included in the design:

- *Upgraded double glazing with an Rw of 36dB consisting of 6.6mm laminated glass with an Argon filled 16mm cavity and 4mm Annealed glass.*
- *The windows are required to be in the closed position to effectively control noise ingress, with the inclusion of a NuAire MHVR ventilation system to provide adequate ventilation*

3.0 ASSESSMENT OF MEASURED NOISE LEVELS

Table 1 - Comparison of noise levels

Survey Location	Measured Noise levels	Required Noise levels as per BS8233 See Note 7 below
Daytime External Garden Level	55.0	55.0
Rear Bedroom Internal Daytime	38.0	40.0.
Rear Bedroom Night time Internal	34.0	35.0

- 3.1 See Appendix 5 for a detailed explanation of BS8233:2014
- 3.2 Table 1 above shows a comparison of the guidance noise levels, corresponding to the reasonable internal and external ambient noise levels detailed in BS 8233 [1] compared with the measured levels.

4.0 CONCLUSIONS

- 4.1.1 The internal noise levels meet the requirement in BS 8233 for reasonable internal conditions to be achieved.
- 4.1.2 The glazing at the rear elevation is required to be in the closed position to effectively control noise ingress. This requirement has been catered for with the inclusion of MHVR units to ensure that there is adequate ventilation with the windows closed.
- 4.2 The external daytime noise level meets the upper guideline requirement of BS 8233

P.A.T. 11/11/25
M.Sc., I.Eng., M.I.O.A.,
M.Inst.SCE., M.A.E.S.

Appendix 1 Survey Details

A1.0 SURVEY DETAILS

External Sound Survey

- A1.1.1 The meter was calibrated at the start of the measurement procedure and checked after each set of measurements. No significant deviation i.e. > 0.5 dB was recorded.
- A1.1.2 The survey commenced at 16.30 hours on 09/10/2025 for a continuous 24-hour period.
- A1.1.3 Weather conditions: 50% cloud cover, 17°C, dry, occasional slight intermittent breezes $< 2.5 \text{ ms}^{-1}$.
- A1.2 **Measurement Procedure:**
- A1.2.1 The meter was located inside the building and mains powered. The microphone was located on tripod 3m from the façade of the building in the garden at ground floor level. The microphone was inside an approved weather-proof microphone housing.
- A1.2.2 The meter was adjusted to log and store L_{Aeq} , L_{A90} and L_{AFmax} in 5-minute periods for the duration of the survey (see Table 3).
- A1.2.3 On completion of the survey, the data was downloaded to a computer for further analysis.
- A1.2.4 The analysis consisted of using B&K 7820 Evaluator software to divide the results into the time periods 07:00-23:00 and 23:00-07:00.

A1.3

Equipment Used:**Table 2 – Equipment Used, External Survey**

ITEM	Serial No	UKAS Calibration Certificate Date (if applicable)
(ANL-M4) B&K 2250 Handheld Analyser	2567736	Certificate: 16159 Date: 09/03/23
(ANL-C4) B&K 4231 Calibrator	2567363	Certificate: 16157 Date: 07/03/23

Table 3 – Meter Details, External Survey

Instrument:	2250	
Application:	BZ7224 Version 4.7.8	
Start Time:	10/09/2025 16:37:52	
End Time:	10/10/2025 16:25:50	
Elapsed Time:		23:47:58
Bandwidth:		1/3-octave
Max Input Level:	142.51	
Broadband (excl. Peak):	FSI	AZ
Broadband Peak:		Z
Instrument Serial Number:	2567736	
Microphone Serial Number:	2560565	
Input:		Top Socket
Windscreen Correction:		None
Sound Field Correction:		Free-field
Calibration Time:	10/09/2025 16:15:52	
Calibration Type:	External reference	
Sensitivity:	41.7556278407574 mV/Pa	

PLOT 9 REAR ELEVATION**Internal Sound Survey**

- A1.3.1 The meter was calibrated at the start of the measurement procedure and checked after each set of measurements. No significant deviation i.e. > 0.5 dB was recorded.
- A1.3.2 The survey commenced at 16.45 hours on 09/10/2025 for a continuous 24-hour period.
- A1.3.3 Weather conditions: 50% cloud cover, 17°C, dry, still.
- A1.4 **Measurement Procedure:**
- A1.4.1 The meter was located inside the building and mains powered. The microphone was located on a tripod in the centre of the rear bedroom at first floor level.
- A1.4.2 The meter was adjusted to log and store L_{Aeq} , L_{A90} and L_{AFmax} in 15-minute periods for the duration of the survey (see Table 3).
- A1.4.3 On completion of the survey, the data was downloaded to a computer for further analysis.
- A1.4.4 The analysis consisted of using B&K 7820 Evaluator software to divide the results into the time periods 07:00-23:00 and 23:00-07:00.

A1.5

Equipment Used:**Table 4 – Equipment Used, Front Elevation**

ITEM	Serial No	UKAS Calibration Certificate Date (if applicable)
(ANL-M3) B&K 2250 Handheld Analyser	2559188	Certificate: 16158 Date: 08/03/23
(ANPC3) B&K 4231 Calibrator	2162602	Certificate: 16156 Date: 07/03/23

Table 5 – Meter Details

Instrument:		
Application:	BZ7224 Version 4.7.8	
Start Time:	10/10/2025 16:34:21	
End Time:	10/11/2025 16:35:01	
Elapsed Time:	1.00:00:40	
Bandwidth:	Broadband	
Max Input Level:	141.03	
	Time	
Broadband (excl. Peak):	FSI	AZ
Broadband Peak:		
Instrument Serial Number:	2559188	
Microphone Serial Number:	2556132	
Input:		Top Socket
Windscreen Correction:	None	
Sound Field Correction:		Free-field
Calibration Time:	10/10/2025 15:34:50	
Calibration Type:	External reference	
Sensitivity:	49.5387464761734 mV/Pa	

Appendix 2 View of Measurement Positions

A2.0 VIEW OF MEASUREMENT POSITIONS

Figure 1 – View of Equipment Internal Location,



Figure 2 – View of Equipment External Location Plot 9



Appendix 3 Survey Results

A3.0 SURVEY RESULTS

Figure 3 - Daytime External Garden Level

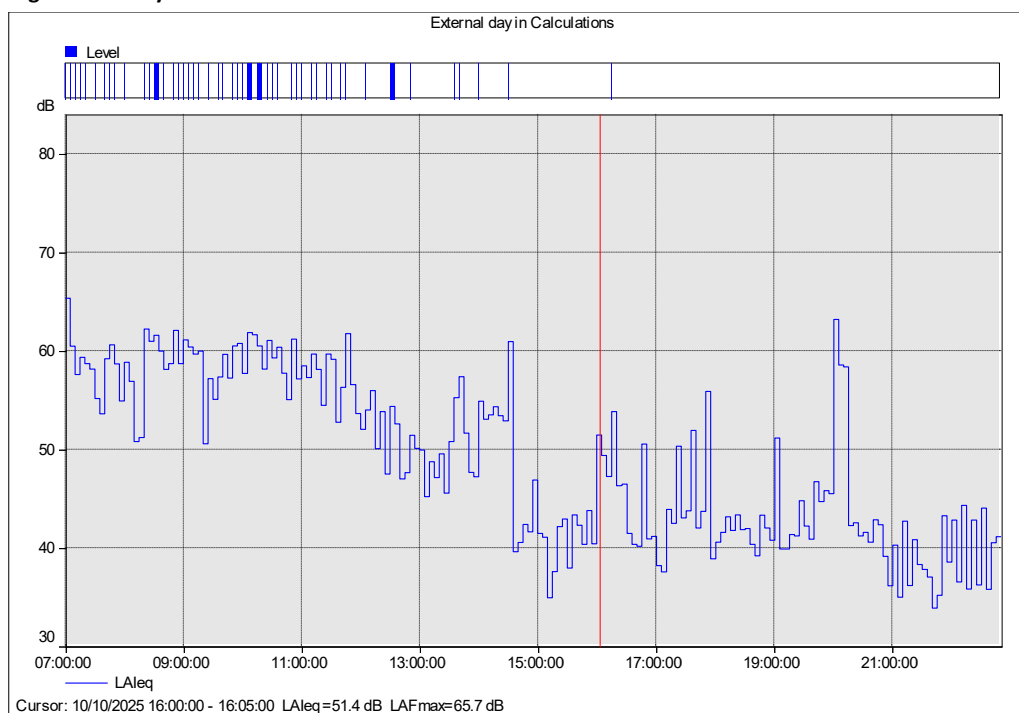


Table 6 – Summary of Daytime External Survey Results Plot 9

Garden	Period	Duration, t	$L_{Aeq,t}$ (dB)
Daytime	07:00 – 23:00	16:00	55.0

Figure 4 - Rear Bedroom Daytime Internal Level.

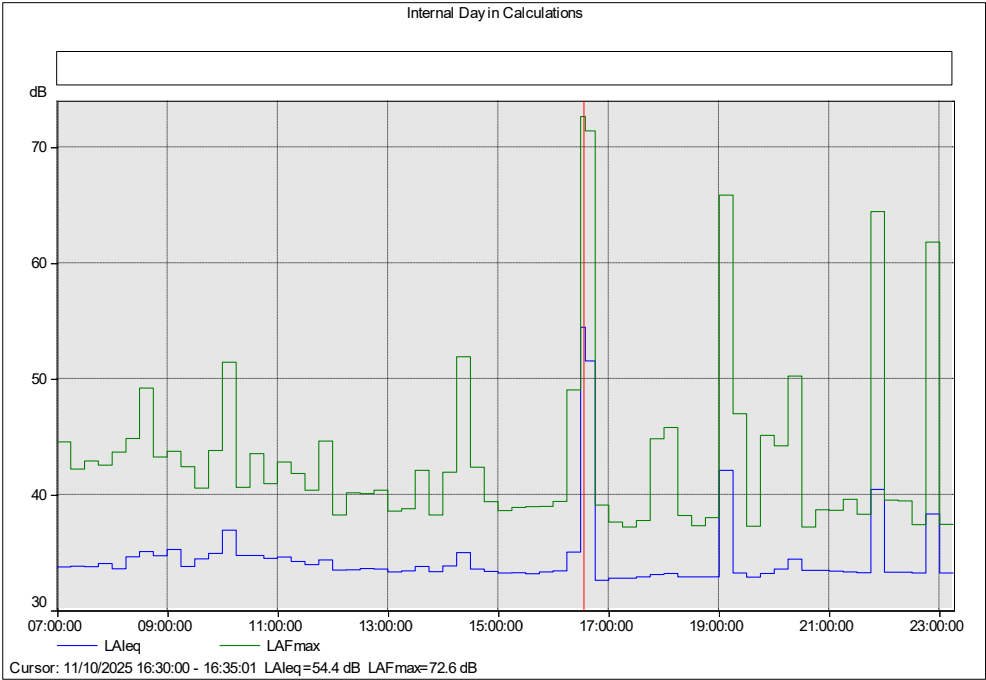


Figure 5 - Rear Bedroom Night time Internal Level

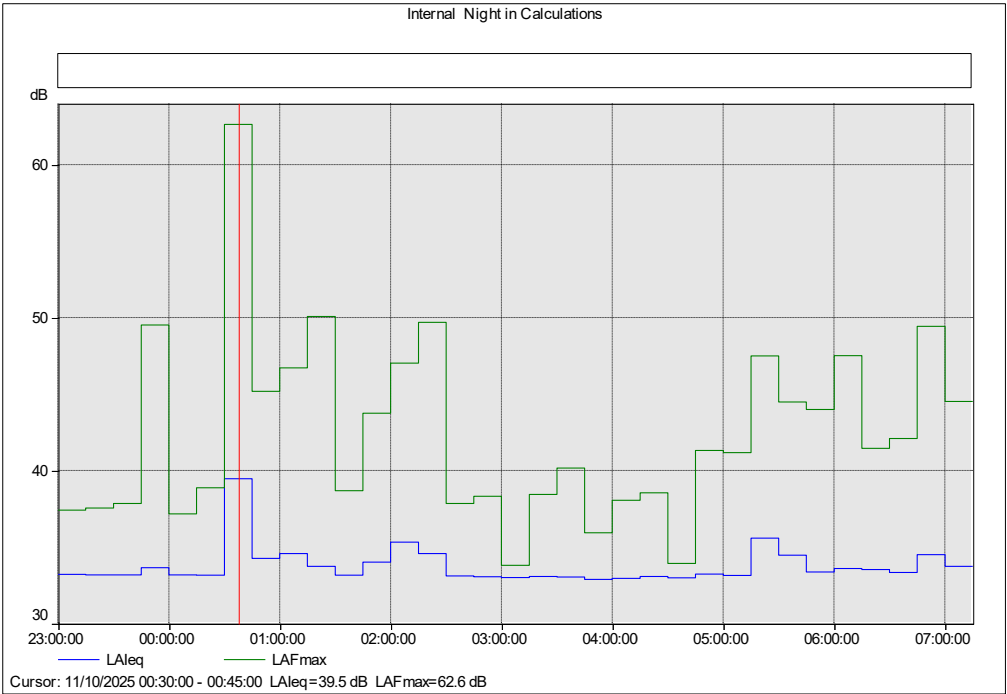
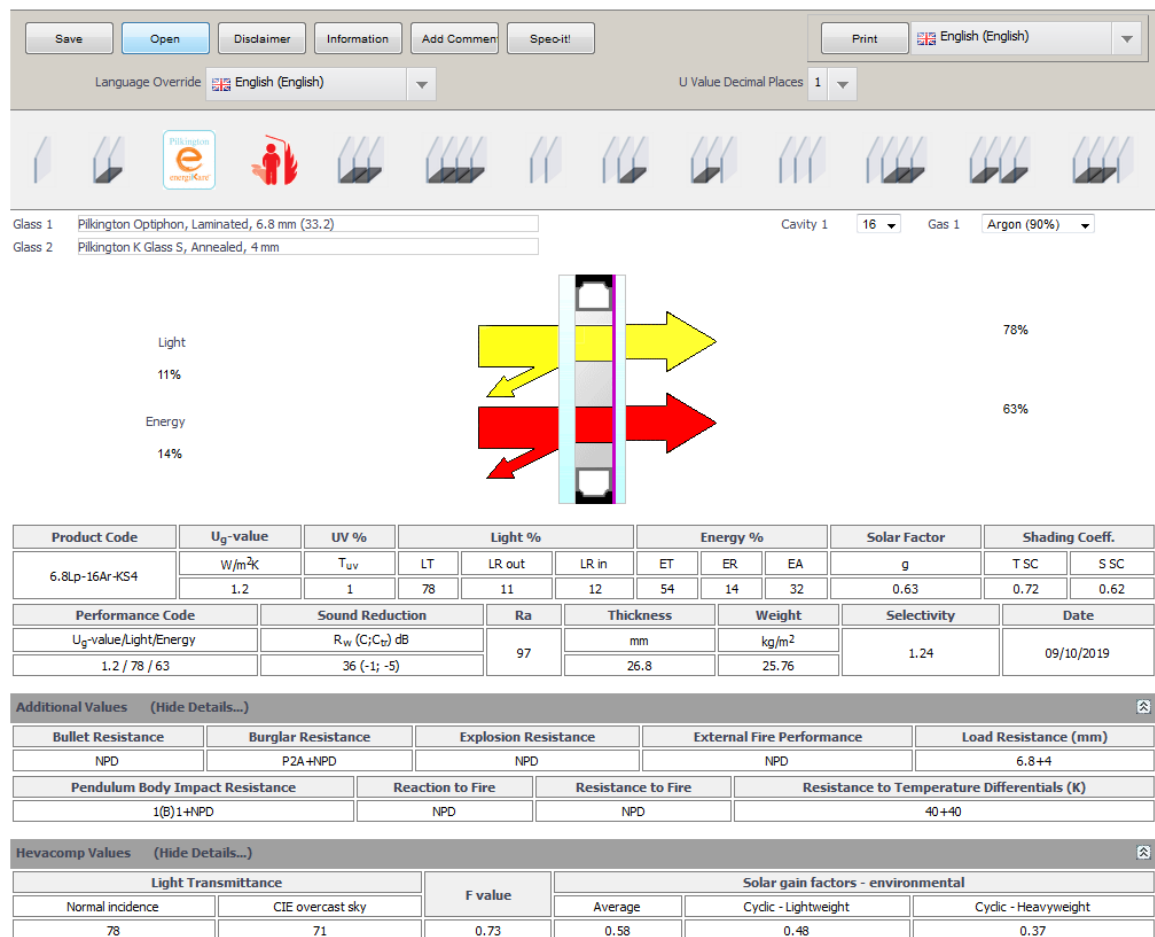


Table 7 – Summary of Internal Survey Results Plot 9

Front Elevation	Period	Duration, t	L _{Aeq,t} (dB)
Daytime	07:00 – 23:00	16:00	38.0
Night Time	23:00 – 07:00	08:00	34.0

Appendix 4 Noise Mitigation Details

Figure 6 - Rear Elevation Glazing Specification



DRAFT FOR COMMENT 1

Appendix 5 Relevant Guidance

A4.0 RELEVANT GUIDANCE

A4.1 BS 8233 - Guidance on Sound Insulation and Noise Reduction for Buildings [1]

A4.1.1 For many common situations, BS 8233 suggests criteria, such as suitable sleeping/resting conditions, and proposes noise levels that normally satisfy these criteria for most people.

A4.1.2 The foreword advises that the information detailed in BS 8233 “...takes the form of guidance and recommendations. It should not be quoted as it were a specification or a code of practice and claims of compliance cannot be made to it.”.

A4.1.3 Section 7.7.2 details the guideline values for desirable internal ambient noise levels within dwelling houses, flats and rooms in residential use (when unoccupied) when such properties are exposed to steady external noise sources.

A4.1.4 These guideline values range from 35 - 40 dB $L_{Aeq,16hrs}$ during the daytime period and 30 dB $L_{Aeq,8hrs}$ during the night period as detailed in Table 8 below.

Table 8 – BS 8233 Internal Noise Level Guidelines

Activity	Location	07:00 – 23:00 hrs	23:00 – 07:00 hrs
Resting	Living Room	35 dB $L_{Aeq,16hrs}$	--
Dining	Dining room	40 dB $L_{Aeq,16hrs}$	--
Sleeping (Daytime Resting)	Bedroom	35 dB $L_{Aeq,16hrs}$	30 dB $L_{Aeq,8hrs}$

Figure 7 – Note 7 Reproduced from BS8233

NOTE 7 Where development is considered necessary or desirable, despite external noise levels above WHO guidelines, the internal target levels may be relaxed by up to 5 dB and reasonable internal conditions still achieved.

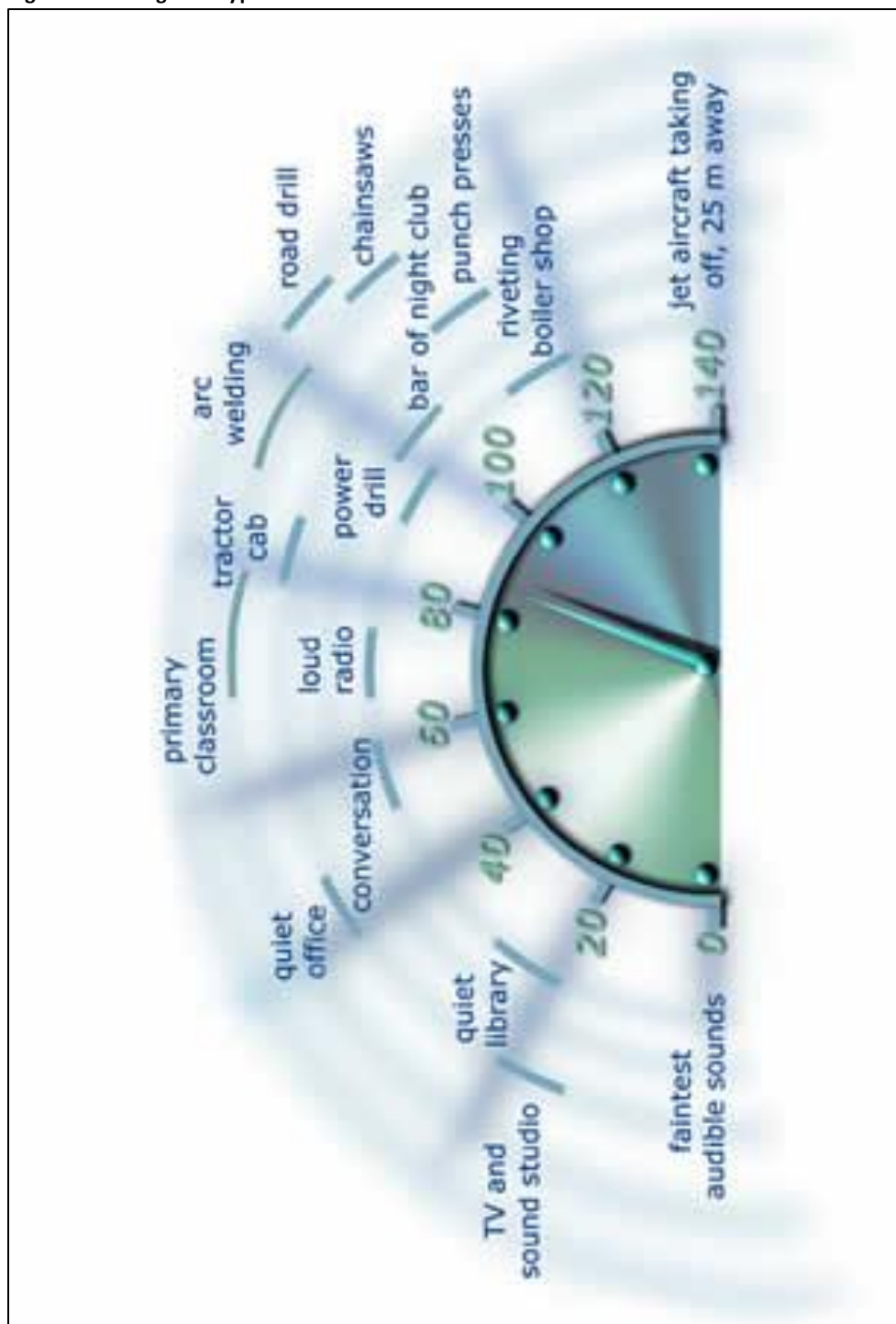
A4.1.5 As per Note 7 above the guidelines provide scope for relaxing these values by up to 5 dB and still achieve reasonable internal conditions.

- A4.1.6 It should be noted that the acoustic performance of the building envelope will be reduced, in the event windows are opened for ventilation or cooling purposes, to no more than 10 to 15 dBA.
- A4.1.7 For traditional external areas that are used for amenity space, such as gardens and patios, it is desirable that the external noise level does not exceed 50 dB $L_{Aeq,16hrs}$ with an upper guideline value of 55 dB $L_{Aeq,16hrs}$ which would be acceptable in noisier environments.

Appendix 6 Range of Typical Sound Levels

A5.0 RANGE OF TYPICAL SOUND LEVELS

Figure 8 – Range of Typical Sound Levels



Appendix 7 Glossary of Acoustic Terms

A6.0 GLOSSARY OF ACOUSTIC TERMS

A6.1 Acoustic environment:

Sound from all sound sources as modified by the environment [BS ISO 12913-1:2013]

A6.2 Ambient sound:

Totally encompassing sound in a given situation at a given time, usually composed of sound from many sources near and far

NOTE The ambient sound comprises the residual sound and the specific sound when present.

A6.3 Ambient sound level, $L_A = L_{Aeq,T}$:

The equivalent continuous A-weighted sound pressure level of the totally encompassing sound in a given situation at a given time, usually from many sources near and far, at the assessment location over a given time interval, T

NOTE the ambient sound level is a measure of the residual sound and the specific sound when present.

A6.4 Background sound level, $L_{A90,T}$:

A-weighted sound pressure level that is exceeded by the residual sound at the assessment location for 90% of a given time interval, T, measured using time weighting F and quoted to the nearest whole number of decibels

A6.5 Equivalent continuous A-weighted sound pressure level, $L_{Aeq,T}$:

The value of the A-weighted sound pressure level in decibels of continuous steady sound that, within a specified time interval, $T = t_2 - t_1$, has the same mean-squared sound pressure as a sound that varies with time, and is given by the following equation:

$$L_{Aeq,T} = 10 \lg \left\{ \left(\frac{1}{T} \right) \int_{t_1}^{t_2} \left[\frac{p_A(t)^2}{p_0^2} \right] dt \right\}$$

where:

p_0 is the reference sound pressure (20 μ Pa); and

$p_A(t)$ is the instantaneous A-weighted sound pressure (P_A) at time t

NOTE The equivalent continuous A-weighted sound pressure level is quoted to the nearest whole number of decibels.

A6.6 Measurement time interval, T_m :

Total time over which measurements are taken

NOTE This may consist of the sum of a number of non-contiguous, short-term measurement time intervals.

A6.7 Rating level, L_{A,r,T_r} :

Specific sound level plus any adjustment for the characteristic features of the sound

A6.8 Reference time interval, T_r :

Specified interval over which the specific sound level is determined

NOTE this is 1 h during the day from 07:00 h to 23:00 h and a shorter period of 15 min at night from 23:00 h to 07:00 h.

A6.9 Residual sound:

Ambient sound remaining at the assessment location when the specific sound source is suppressed to such a degree that it does not contribute to the ambient sound

A6.10 Residual sound level, $L_r = L_{Aeq,T}$:

Equivalent continuous A-weighted sound pressure level of the residual sound at the assessment location over a given time interval, T

A6.11 Specific sound level, $L_s = L_{Aeq,T_r}$:

Equivalent continuous A-weighted sound pressure level produced by the specific sound source at the assessment location over a given reference time interval, T_r

A6.12 Specific sound source:

Sound source being assessed

- A6.13 A-weighting:**
Normal hearing covers the frequency (pitch) range from about 20 Hz to 20,000 Hz but sensitivity is greatest between about 500 Hz and 5,000 Hz. The 'A-weighting' is an electrical circuit built into noise meters to approximate this characteristic of human hearing.
- A6.14 Decibel (dB):**
The logarithmic measure of sound level. 0dB (A) is the threshold of normal hearing. 140 dB (A) is the level at which instantaneous damage to hearing is caused. A change of 1 dB is detectable only under laboratory conditions.
- A6.15 dB(A):**
Decibels measured on a sound level meter incorporating a frequency weighting (A-weighting) which differentiates between sounds of different frequency (pitch) in a similar way to the human ear. Measurements in dB(A) broadly agree with an individual's assessment of loudness. A change of 3 dB (A) is the minimum perceptible under normal conditions and a change of 10 dB(A) corresponds roughly to doubling or halving the loudness of a sound.
- A6.16 Free Field:**
A sound field in which no significant sound reflections occur.
- A6.17 L_{Amax} :**
The maximum 'A-weighted' level of sound recorded during a sound event. The time weighting used (fast or Slow) should be stated.
- A6.18 Tonality:**
The degree to which a sound contains audible pure tones. Broadband sound (across a wider range of frequencies) is generally less annoying than sound with identifiable tones.
- A6.19 Frequency:**
The number of cycles per second of a vibration usually expressed in units of Hertz, Hz

A6.20

Hertz:

Unit of frequency, equal to one cycle per second. Frequency determines the pitch of a sound.

Appendix 8 References

A7.0 REFERENCES:

- 1 BS 8233:2014. 'Guidance on sound insulation and noise reduction for buildings', British Standards Institution 2014