Azymuth Acoustics UK

Professional Acoustic Services

Noise Impact Assessment
Ref: AA0645 Rev A

Ground Floor Café, 4 Ridgefield, Manchester

On behalf of

Green Grant Installs,
298 Bolton Road North
Rambottom

Bury BL0 0NG





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1.0 Introduction

Azymuth Acoustics UK (henceforth Azymuth) has been undertaking a Noise Impact Assessment (NIA) in relation to a café located at 4 Ridgefield, Manchester City Centre. The assessment has been carried out to support the proposed operation of the café and to determine whether the development is compliant with the relevant noise criteria set by Manchester City Council.

This assessment includes the undertaking of a baseline noise survey at the site in order to provide appropriate noise limits for fixed plant and atmospheric connections associated with the premises and to ensure internal nosie levels of the café are within acceptable levels.

In addition, the report provides:

- An assessment of applicable noise limits for fixed plant equipment.
- An evaluation of internal noise criteria to ensure suitable acoustic conditions within the premises.
- A prediction of noise from patrons, amplified music (simply a domestic radio or other small scale background music system), and ventilation systems (likelt to be domestic scale “Ven-Axia” fans etc).
- Recommendation for glazing specification.

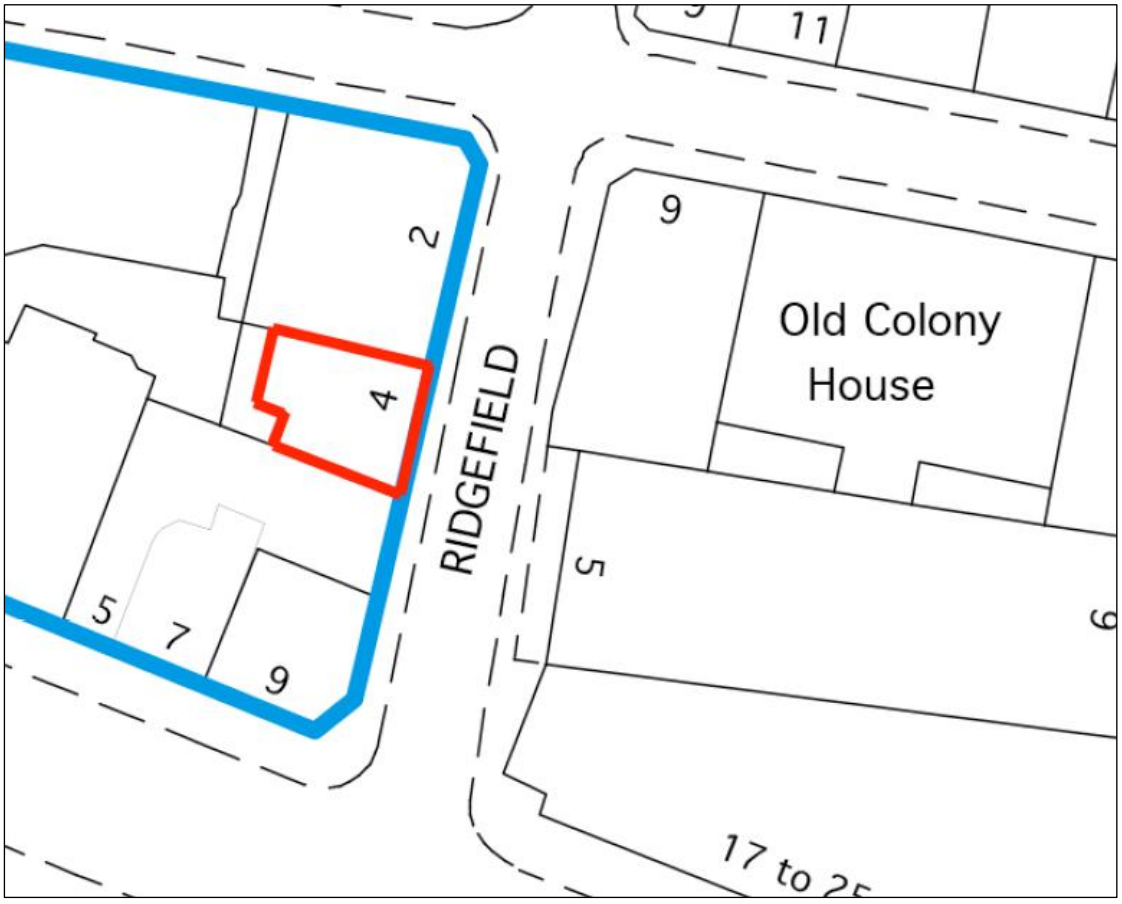


Figure 1 – Property location(red)

2.0 Baseline Noise Survey

2.2 Measurement Procedures

The instrumentation used for the NIA consisted of a SvanTek 971 type 1 precision sound level meter. The equipment was calibrated before and after measurements. The sound level meter measured A-weighted (fast response) noise levels as well as octave bands noise levels for all measurement record.

Daytime noise level measurements were undertaken between 13:00hrs and 13:55hrs on Tuesday 3rd February 2026. Evening measurements were undertaken between 17:17hrs to 17:52 hrs on Friday 13rd February 2026. The night-time measurements were undertaken between 23:10hrs and 23:35 hrs also on Friday 13rd February 2026.

The noise measurements were undertaken using a sound level meter at Position 1 shown in Figure 2 below:

- Position 1: In front of the developmemnt entry door, 4 Ridgefield pavement.

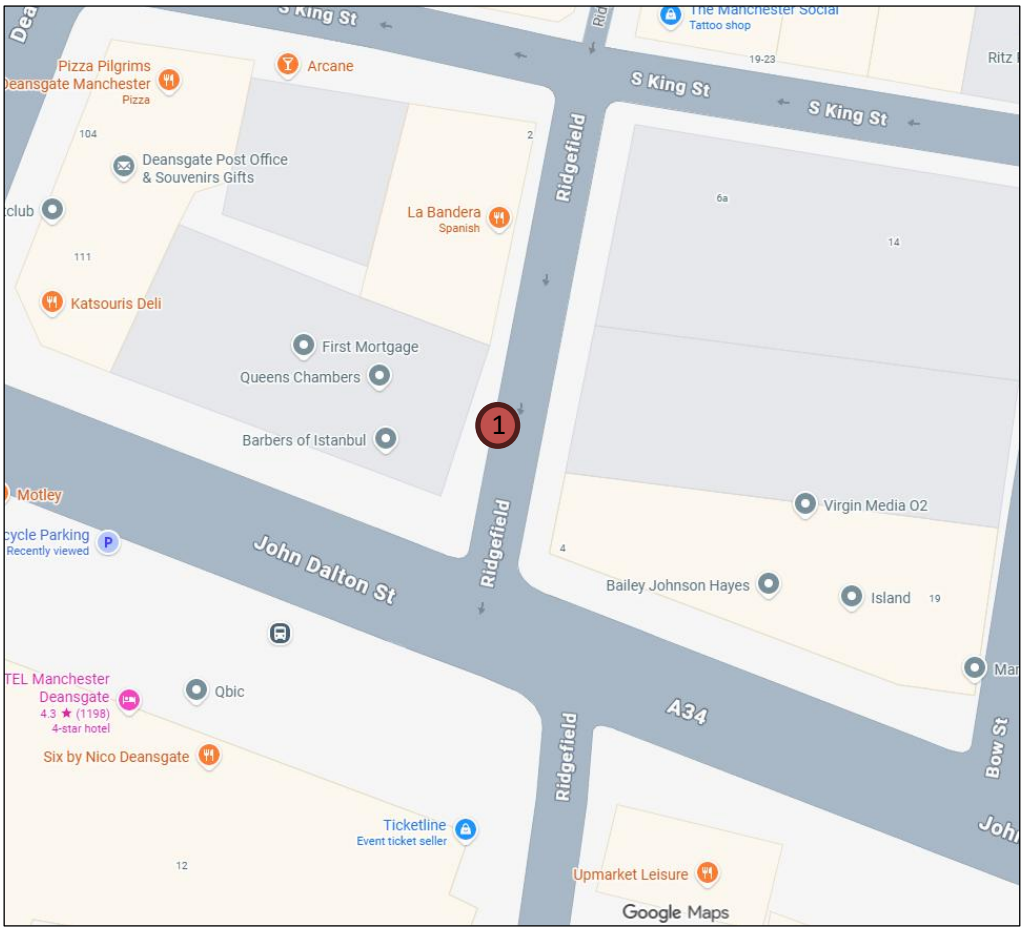


Figure 2 – Noise measurement positions (red spot)

2.3 Summary of Noise Measurements

The following table summarises the results of the noise measurements undertaken at the proposed site in terms of the average daytime and night-time noise levels.

Location	Period	L_{AFmax}	L_{Aeq}	L_{A10}	L_{A50}	L_{A90}
Proposed Café	Day	88.7	67.5	69.0	62.1	57.2
	Evening	76.5	63.8	67.3	61.3	57.6
	Night	88.3	64.5	66.6	59.8	55.8

Table 1 – Summary of noise measurements

Daytime to night background noise levels were measured to be between 55-58 dBA L_{A90}. The noise levels measured during the night period at Position 1 are representative of other noise sensitive receptors within site area. No further site measurements were required. It can be seen in Table 1 above the background noise levels during the night period ($L_{A90,T}$) do not significantly change across the site area. There was no other major noise sources identified during the nighttime and evening period.

Full results of the noise levels recorded during the survey are included in Appendix B of this report.

2.4 Description of Noise Climate

The main source of noise impacting the site is road traffic noise from the surrounding arterial road network (i.e., John Dalton St). During the daytime, evening, and nighttime period there are no significant noise sources where the nighttime ambient and background noise levels tend to be the lowest levels opposed to the day period and provide a bench mark for the assessment.

The weather throughout the day and night was dry, with low wind speeds.

3.0 Assessment Criteria

To assess the extent of any measures required in order to comply with suitable conditions relating to potential noise sources, Azymuth Acoustics UK has reviewed various guidance documents and standards, these include:

- British Standard 8233: 2014
- World Health Organisation Environmental Noise Guidelines 2018
- British Standard 4142:2014+A1: 2019

3.1 British Standard 8233: 2014

"Guidance on sound insulation and noise reduction for buildings" (BS 8233) provides a code of practice for the sound insulation of a variety of building types affected by general environmental noise. It provides recommendations for control of noise in and around buildings and suggests appropriate internal ambient noise level criteria / limits for a variety of different situations including residential properties.

The following table summarises the noise limits suggested by BS 8233 applying to residential properties:

Activity	Location	Design Range $L_{Aeq,T}$ dB
Speech or telephone communication	Department store Cafeteria, canteen, kitchen	50 - 55

Table 2 – Noise Limits for non-domestic buildings BS 8233

3.2 World Health Organisation Environmental Noise Guidelines 2018

The main purpose of the 2018 WHO guidelines is to provide recommendations for protecting human health from exposure to environmental noise originating from the following sources: transportation (road traffic, railway and aircraft), wind turbines and leisure activities.

The guidelines set out to define recommended exposure levels for environmental noise in order to protect population health. Exposure limits are average levels defined over a period of one year, measured outdoors in free field at the most exposed façade. It should be noted that the document does not provide guideline limit values for multiple noise sources in combination.

The 2018 Environmental Noise Guidelines (ENG) guidelines supersede the Community Noise Guidelines (CNG) from 1999. Nevertheless, the document recommends that all CNG indoor guideline values and any values not covered by the current guidelines should remain valid. As such, the following guidance would remain appropriate:

For protection against sleep disturbance inside dwellings, night-time noise levels should not exceed 30dB L_{Aeq} for continuous noise and 45dB L_{Amax} for typical single sound events (which are exceeded 15 times or more per night – see ProPG Appendix A.12 for more details).

To protect the majority of people from being seriously annoyed during the daytime, the outdoor sound level from steady, continuous noise (interpreted as noise from all sources combined) should not exceed 55dB L_{Aeq} on balconies, terraces and in outdoor living areas.

It should be noted that exposure levels defined in ENG and CNG are for guidance purposes as relates potential adverse health impacts and should not be interpreted as absolute limits or regulations.

3.3 British Standard 4142:2014+A1: 2019

"Methods for assessing and rating industrial sound" (BS 4142) describes methods for rating and assessing sound of an industrial and/or commercial nature. The methods described in this British Standard use outdoor sound levels to assess the likely effects of sound on people who might be inside or outside a dwelling or premises used for residential purposes upon which sound is incident.

- Typically, the greater the difference between background sound and industrial/commercial noise, the greater the magnitude of the impact.
- The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact or a significant adverse impact. Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact, depending on the context.
- A difference of around +5dB is likely to be an indication of an adverse impact, depending on the context.

- A difference of around +10dB or more is likely to be an indication of a significant adverse impact, depending on the context.

BS 4142 notes that: "Adverse impacts include, but are not limited to, annoyance and sleep disturbance. Not all adverse impacts will lead to complaints and not every complaint is proof of an adverse impact."

3.5 Manchester City Council Planning & Noise Policy Document GD03

The Manchester City Council Planning & Noise technical Guidance document provides developers with information related to Manchester City Council policy on discharging planning conditions imposed by the City wide Environmental and Public Protection Team. The document has specific sections covering policy on noise from entertainment venues, fixed plant and equipment etc. The document states:

'A planning application for a new entertainment venue that is structurally detached from other building uses should demonstrate that music noise from the proposal will not be 'audible' in nearby residential properties, assuming that the residential properties in question have their windows open.

'Entertainment noise ($L_{Aeq,5min}$) should be controlled to 5dB below the background noise level (L_{A90}) without the entertainment noise present, in each octave band at the nearest noise sensitive location'.

In relation to proposed entertainment venues structurally connected to residential developments the document provides the following criterion:

'Noise levels in the 63Hz and 125Hz octave frequency bands (L_{eq}) should be controlled so as not to exceed (in habitable rooms) 47dB and 41dB ($L_{eq,5min}$) respectively'.

As relating to noise from externally mounted ancillary plant the document states:

'Externally mounted ancillary plant, equipment and servicing shall be selected and/or acoustically treated in accordance with a scheme 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'.

4.0 Noise Assessment

4.1 Noise Limits for Fixed Plant or Atmosphere Connections

We understand that there is no external plant proposed for the development and that the ventilation for the development will be limited to domestic scale systems such as a "Vent-Axia" fan or similar.

Nevertheless we have provided fixed plant noise limits for any atmosphere connections / grilles etc for such domestic scale fans, The lowest average background noise level was measured to be 56dB $L_{A90,T}$ during the nighttime period and therefore provides a benchmark for the plant noise limit.

These limits will ensure that noise levels at on and off-site locations from the plant does not exceed the background sound level, NB these limits are easily achievable and do not require further detailed investigation.

Noise Source Location	Measurement Location	Period	Background Sound Level / Limit (dBA)	Max plant level @ 1m
Café	1	Night	56	51

Table 3 – Predicted noise levels at nearest noise sensitive receptors

4.2 Interior Noise Control

We recommend the following Noise Rating (NR) for the café are as presented in Table 4.

Room	NR	dBA
Café	45-50	50-55

Table 4 – BS 8233recommended noise criteria for Café space

4.3 Predicted Noise from Patrons, Amplified Music, and Ventilation

As well as the reverberation time calculations we have predicted the internal reverberant noise limit for the Café. This has been undertaken to provide a maximum noise level within the Café that should not be exceeded to meet NR 50 guidance target. Table 5 provides the design target for internal noise attributable to raised patrons voice, amplified music (eg domestic scale radio or Wifi/Bluetooth streaming speaker), and ventilation supply and extract noise.

Area	NR Criteria	dBA	Reverbarant Noise Level Limit (dBA)
Noise from patrons and music	-	55	75
Noise from ventilation	50	55	65

Table 5 – Azymuth recommended noise limit with Café area

Based on the results here the internal reverberant noise level should not exceed 75 dB(A) when measured internally during the active periods of the Café. These levels are not anticipated to have any significant effect on the nearby noise climate nor on any nearby receptors.

4.4 Recommended Glazing Specification

The table below outlines the proposed composite glazing specification.

Area	Glazing Specification	Ventilation
Café	min. 31dB R_W and 27dB R_W+C_{tr} (Standard 4/12/4)	Can have open windows during the day, evening, and night

Table 6 – Azymuth recommended composite ceiling construction

The table above summarises the glazing performance requirements for the café. A minimum sound reduction performance of 31dB R_W (27dB $R_W + C_{tr}$) is recommended. This level of performance can typically be achieved with standard 4/12/4 double glazing. Natural ventilation via openable windows is considered acceptable under the assessed conditions.

4.5 Predict Noise Level Directly Opposite Premises

The following table summarises the noise break-out predicted for these premises based on a worst case internal reverberant sound level of 75dBA for sound from patrons and a domestic

radio or bookshelf sized loudspeaker (as the only likely type of sound source inside the premises).

TheOctave Band Frequency	63	125	250	500	1k	2k	4k	8k	dBA
Internal sound level	64	65	64	69	70	69	66	64	75
Receptor sound level	**31**	**24**	**27**	**27**	**18**	**14**	**14**	**6**	27
Background noise level	62	52	52	51	51	46	40	32	54
Manchester city council targets	**47**	**41**							54-5 = 49
Assessment of noise	✓	✓							✓

Table 7 – assessment of noise levels for receptors on the opposite side of Ridgefield

The nearest receptors on the opposite side of proposed Café are office or commercial premises. The assessment of noise at this receptor location indicates that the operational sound from the café will be 27dB below the background noise level. This is also observed in the 63Hz and 125Hz targets stipulated by Manchester City Council (for noise sensitive receptors) which are also seen to be around 30 dB below at these frequency bands.

4.6 Predict Noise Level Directly Above Premises (through the floor)

The following table summarises the noise break-through predicted for these premises based on a worst case internal reverberant sound level of 75dBA for sound within the café (as above).

Octave Band Frequency	63	125	250	500	1k	2k	4k	8k	dBA
Internal sound level	64	65	64	69	70	69	66	64	75
Receptor sound level (through floor)	**44**	**38**	**30**	**28**	**23**	**19**	**6**	**3**	=<30
Background noise level	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Manchester city council targets	**47**	**41**							
Assessment of noise	✓	✓							✓

Table 8 – assessment of noise levels for office receptors above the proposed cafe

It can be seen from the values tabulated above that the calculated noise level for the office receptors directly above the café is 30dBA or less. There is no background noise level directly applicable for these receptors as they are inside a building, however, a noise level of 40-45dBA is likely for an office of this type. The calculated noise break-through level (30dBA) is significantly below the likely levels in the office accommodation and the 63Hz and 125Hz octave band noise levels are also satisfactory with respect to the 63Hz and 125Hz targets stipulated by Manchester City Council (for noise sensitive receptors).

5.0 Summary

Azymuth Acoustics UK (henceforth Azymuth) has been undertaking a Noise Impact Assessment (NIA) in relation to a café located at 4 Ridgefield, Manchester City Centre. The assessment has been carried out to support the proposed operation of the café and to determine whether the development is compliant with the relevant noise criteria set by Manchester City Council.

This NIA is intended to provide information relating to the potential noise impact associated with the operation of the café on the surrounding environment, in order to determine compliance with the relevant requirements.

It is understood that the café will operate during both daytime and evening periods. Noise sources associated with the premises include ventilation systems, patron activity, and amplified background music.

A baseline noise survey was undertaken on the site. Daytime to night background noise levels were measured to be between 55-58 dBA L_{A90}.

Recommended glazing specifications (standard 4/12/4) have been provided to ensure adequate sound insulation performance and to maintain compliance with both internal and external noise criteria.

No significant noise impacts associated with the operation of the café have been identified. The proposed café is expected to be fully compliant with the Manchester City Council noise assessment criteria.

Appendix A – Glossary of Acoustic Terms

Decibel (dB)
This is the unit used to measure sound. The human ear has an approximately logarithmic response to acoustic pressure over a very large dynamic range (typically 20 micro Pascal to 100 Pascal).

dB (A)
This is a measure of the overall noise level of sound across the audible spectrum with a frequency weighting (i.e. A-weighting) to compensate for the sensitivity of the human ear to sound of different frequencies. The A-weighting curve is implemented in sound level meters using an electronic filter that approximately corresponds to the frequency response of the ear.

Octave Band Noise Level
The human ear is sensitive to sound over a range of frequencies between approximately 20Hz to 20kHz. The ear is also generally more sensitive to medium and high frequencies than to low frequencies. In order to define the frequency content of a noise, the spectrum can be divided into frequency bands. The most commonly used frequency bands are octave bands, in which the mid-frequency of each band is twice that of the band below it.

L_{Aeq}
This is the equivalent steady sound level in dB(A) containing the same acoustic energy as the actual fluctuating sound level over a given time period.

Reverberation Time (RT or sometimes T_{30} or T_{60})
This is the time taken for the reverberant sound energy in an enclosure to decay one millionth of its equilibrium value, i.e. by 60dB, after the source has been switched off. The reverberation time is frequency dependent and it is customary to measure its value in octave or one-third octave bands. Reverberation occurs when sound waves are repeatedly reflected from each surface of the room.

Sound Reduction Index (SRI)
Difference measured between the amount of energy flowing towards the wall in the source room and the total amount of energy entering the receiving room (usual range 100 - 3150Hz for one third octave band values). The SRI varies with frequency and is measured in a laboratory in either octave or one-third octave bands.

SRI = L1 - L2 + 10 log (S/A), where:
L1 = Noise level in the source room
L2 = Noise levels in the receiving room
S = Surface area of test specimen
A = Equivalent acoustic absorption area in the receiving room

Weighted Sound Reduction Index (R_w)
This is a weighted single figure descriptor of the sound insulation performance of a partition measured under laboratory conditions. The procedure used to quantify the R_w is to compare the sound reduction index (SRI) in each of the one-third octave bands from 100Hz to 3150Hz against a set of standard reference curves.

Appendix B – Noise Survey Data

Start	Position	LAmax	LAeq	LA10	LA50	LA90
Tuesday 3rd Feburary 2026 -Day						
13:00	1	92.1	70.8	70.2	62.5	57.8
13:05	1	88.8	69.4	70.2	62.5	57.8
13:10	1	80.1	65.5	70.2	62.5	57.8
13:15	1	83.4	65.3	67.9	61.9	57.7
13:20	1	84.8	66.5	67.9	61.9	57.7
13:25	1	83.1	65.8	67.9	61.9	57.7
13:30	1	86.1	67.0	70.0	63.0	57.2
13:35	1	96.3	70.3	70.0	63.0	57.2
13:40	1	84.5	68.2	70.0	63.0	57.2
13:45	1	82.2	63.6	67.0	60.7	55.6
13:50	1	84.1	65.1	67.0	60.7	55.6
13:55	1	85.4	65.3	67.0	60.7	55.6
Friday 13rd Novemeber 2026 - Evening						
17:17	1	82.5	64.0	66.7	61.4	58.2
17:22	1	77.8	66.6	71.2	63.6	58.6
17:27	1	74.4	65.3	68.9	63.2	57.6
17:32	1	73.1	62.3	65.5	60.2	57.3
17:37	1	71.3	62.5	65.8	60.2	57.1
17:42	1	71.3	62.4	65.4	60.5	57.6
17:47	1	70.4	60.8	63.8	59.2	56.8
17:52	1	75.5	63.6	65.9	62.0	57.6
Friday 13rd Novemeber 2026 - Night						
23:10	1	81.9	62.0	64.8	59.6	55.4
23:15	1	76.4	60.9	63.7	58.6	54.3
23:20	1	80.2	63.8	65.3	60.9	57.1
23:25	1	89.7	68.3	64.6	59.5	56
23:30	1	73.4	62.8	66.3	60.3	56.7
23:35	1	75.4	64.8	70.6	59.8	54.8

Appendix C – Noise BREAK-In Calculation

											Azymuth *Acoustics UK Ltd*	
JOB NO.:	AA0645				**PROJECT:**	4 Ridgefield Manchester						
Room :	Café							**ROOM VOLUME:**	**72**	m3		
Floor:	G	(0 = GND)										
Elevation:	South							**Criteria :**	**55**	dBA		
Period:	Day & Evening											
	Octave Band Centre Frequency (Hz)				**63**	**125**	**250**	**500**	**1k**	**2k**	**4k**	
					FREE FIELD EXTERNAL LEVELS (dB)							
		AREA				**65.4**	**64.3**	**66.8**	**63.8**	**61.1**	**55.1**	
		Swi:			**OCTAVE BAND SOUND REDUCTION**							
Standard 4/12/4		2.35	m2	Rwi:		24	20	25	34	37	37	
		A0:										
Open Window		0	m2	Dne:		99	99	99	99	99	99	
		Sew:										
Standard Wall		**27.5**	m2	Rew:		40	45	52	55	55	55	
		Srr:										
Standard Ceiling		14	m2	Rrr:		27	37	43	48	52	52	
		Sf:										
		29.85	m2									
		S:										
		43.85	m2									
				COMPOSITE SRI OF FACADE	0.0	-30.4	-32.1	-37.2	-45.5	-48.3	-48.3	
						REVERBERATION TIME						
					0.5	0.5	0.5	0.5	0.5	0.5	0.5	
				ABSORPTION AREA	***23***	***23***	***23***	***23***	***23***	***23***	***23***	
	TOTAL INTERNAL LEVEL (SPL)				9	44	41	38	27	22	16	
	A-WEIGHTED LEVELS				-17	28	32	35	27	23	17	
	A-WEIGHTED OVERALL LEVEL				38.01	dBA						